ENVIRONMENTAL PROTECTION AGENCY

[FRL-4152-7]

Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990

AGENCY: Environmental Protection Agency (EPA)

ACTION: Notice of initial list of categories of major and area sources.

SUMMARY: This notice publishes an initial list of categories of major and area sources of hazardous air pollutants (HAP's), as required under Section 112(c)(1) of the Clean Air Act (CAA) as amended in 1990. The statute requires the Agency to promulgate regulations, over the 10 years following amendment of the CAA, establishing emission standards for each listed category of major sources and area sources.

Today's list does not constitute completion of the listing requirements under Section 112(c)(3), pursuant to the area source program under Section 112(k)(3)(B), or the listing requirements under Section 112(c)(6), relating to sources of specific pollutants. Today's notice does not contain guidance or procedures for filing petitions to delete listed categories of sources, as allowed under Section 112(c)(9)(B). Moreover, because of uncertainties in the available data bases concerning sources and emissions of HAP's, all categories of major and area sources meeting the listing criteria in Section 112(c)(1) may not be included on today's list. In addition, all categories of sources may not be disaggregated to the extent necessary eventually for the establishment of emission standards. Descriptions of the categories on today's list are included in the docket, to identify industry sectors, processes and equipment that may constitute each listed category.

The Agency considers the listing of categories of sources under Section 112(c)(1) to be an ongoing process. Under Section 112(c)(1), the Agency is obligated to revise the list if appropriate, in response to public comment or new information, from "time to time, but no less often than every 8 years." The Agency intends to maintain the list as part of the regulatory development process of establishing emission standards and may revise the list on the basis of deletion determinations as part of the source category deletion process to be defined in a later **Federal Register** notice.

EFFECTIVE DATE: July 16, 1992.

ADDRESSES: Docket. Docket No. A-90-49, containing supporting information used in developing the notice, is available for public inspection and copying between 8:30 a.m. and 3:30 p.m., Monday through Friday, at the Agency's Air Docket, room M1500, U. S.

Environmental Protection Agency, 401 M Street, SW., Washington, D. C. 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For information concerning categories of sources involving the production, handling, refining or use of chemicals or petroleum, or products thereof, contact Mr. David Svendsgaard, Chemicals and Petroleum Branch, Emission Standards Division (MD-13), Office of Air Quality Planning and Standards, U. S. Environmental Protection Agency, Research Triangle Park, N. C. 27711, telephone number (919) 541-2380.

For information concerning categories of sources involving fuel combustion, incineration, metals and minerals processing, contact Mr. William Maxwell, telephone number (919) 541-5430, Industrial Studies Branch, at the above address.

For general information concerning this notice, contact Mr. Thomas Lahre, Pollutant Assessment Branch, telephone number (919) 541-5668, at the above address.

SUPPLEMENTARY INFORMATION: The information presented in this notice is organized as follows:

Table 1 -- Initial List of Categories of Major and Area Sources of Hazardous Air Pollutants

Acronym List

CAA	=	Clean Air Act
CFC-113	=	trichlorotrifluoroethane
CFR	=	Code of Federal Regulations
CTG	=	Control Technology Guidelines
CNS	=	central nervous system
Cr(+3)	=	trivalent chromium
Cr(+6)	=	hexavalent chromium
CWA	=	Clean Water Act
DOE	=	Department of Energy
FR	=	Federal Register
GACT	=	generally available control technology
HAP	=	hazardous air pollutants
kg/yr	=	kilograms per year
MACT	=	maximum achievable control technology
lb/yr	=	pounds per year
MC	=	methylene chloride
Mg/yr	=	megagrams per year
MSHA	=	Mine Safety and Health Administration
NEDS	=	National Emissions Data System
NESHAP	=	national emission standards for hazardous air pollutants
NRC	=	Nuclear Regulatory Commission
NSPS	=	new source performance standards
OMB	=	Office of Management and Budget
OSHA	=	Occupational Safety and Health Administration
OTVC	=	open top vapor cleaners
PCE	=	perchloroethylene
ppm	=	parts per million
PM	=	particulate matter
POTW	=	publicly owned treatment works
PSD	=	prevention of significant deterioration
RACT	=	reasonably available control technology
RCRA	=	Resource Conservation and Recovery Act
SCC	=	source classification codes
SIC	=	Standard Industrial Classification
SOCMI	=	synthetic organic chemical manufacturing industry
TCA	=	1,1,1-trichloroethane
TCE	=	trichloroethylene
tm	=	trademark
TRIS	=	Toxic Release Inventory System
tpy	=	tons per year
VOC	=	volatile organic compounds
U. S.	=	United States

I. Legislative Background Relating to the Initial Source Category List

The Clean Air Act Amendments of 1990 [Pub. L. 101-549] require, under the revisions to Section 112, that the Agency evaluate and promulgate regulations requiring control of emissions of HAP's from categories of major and area sources. The term "major source" is defined in paragraph 112(a)(1) to mean any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutant or 25 tpy or more of any combination of hazardous air pollutants.

The term "stationary source," from Section 111, means any building, structure, facility, or installation which emits or may emit any air pollutant. The Agency may establish a lesser quantity of pollutant emissions for the definition of a major source than that specified in the previous sentence, based on various characteristics of the pollutants being emitted (including potency, persistence, potential for bioaccumulation, or other relevant factors). The Agency may establish different criteria for the definition of a major source in the case of radionuclides. The term "area source," as defined in Section 112(a)(2), means any stationary source of HAP's that is not a major source. Section 112(c) requires the Agency to list categories of major sources and area sources. Because most groupings of sources are based on process or product-oriented criteria, they may include a mix of both major and area sources. The distinction between categories of major and area sources is discussed in more detail later in this notice.

Section 112(b) includes a list of chemicals, compounds, or groups of chemicals deemed by Congress to be hazardous air pollutants. Section 112(c)(1) requires the Agency to publish, within 1 year of enactment of the CAA Amendments of 1990, a list of categories of major and area sources emitting one or more listed HAP. Categories of area sources may be listed subject to the additional requirements of Section 112(c)(3), which require the Agency to find a "threat of adverse effects to human health or the environment (by such sources individually or in the aggregate) warranting regulation under [Section 112]."

There are additional requirements for listing source categories under Section 112(c)(3) and Section 112(c)(6). Section 112(c)(3) refers to the area source strategy required under Section 112(k). This strategy requires that the Agency list in 5 years, and subject to regulation in 10 years, sufficient categories of area sources to account for 90 percent of the aggregate emissions of each of 30 or more HAP's. These 30 or more HAP's shall be those determined to present the greatest threat to public health in the largest number of urban areas. Section 112(c)(6) requires the listing within 5 years of categories of sources assuring that at least 90 percent of the aggregate emissions of each of seven specific pollutants are subject to emission standards under Section 112(d) within 10 years of enactment of the CAA Amendments. Although some of the categories that will be identified under these sections are probably already included on today's list, there are likely to be others which have not yet been identified. The publication of today's list does not constitute completion of the requirements of Section 112(c)(3) or Section 112(c)(6).

Other requirements in Section 112(c) affect the listing of specific categories of sources. Section 112(c)(4) gives the Agency the discretion to list any category of sources previously regulated under Section 112 before enactment of the CAA Amendments of 1990. Section 112(c)(7) requires the Agency to establish a separate category for research facilities as necessary to assure equitable treatment of such facilities. Section 112(c)(8) requires the Agency to list boat manufacturing as a separate subcategory when establishing emissions standards for styrene. In addition, there are provisions elsewhere in Section 112 and Section 129 that impose listing requirements on the Agency, both directly and indirectly. These provisions, and the Agency's resulting actions, are discussed in detail in Sections III.D and III.E in today's notice.

Revisions to today's list may also result from deletion determinations under Section 112(c)(9)(B). Under Section 112(c)(9)(B), the Agency may delete a category from the list, based on petition of any person or on the Administrator's own motion, upon a determination that: (1) in the case of sources that emit HAP's that may result in cancer, no source in the category (or group of sources in the case of area sources) emits HAP's in quantities that may cause lifetime cancer risk greater than 1-in-1 million to the most exposed individual; or, (2) in the case of sources that emit HAP's that may result in non-cancer adverse health effects or adverse environmental effects, emissions from no source in the category (or group of sources in the case of area sources) exceed a level adequate to protect public health with an ample margin of safety and no adverse environmental effects will result. The Agency shall grant or deny a petition to delete a category within 1 year after the petition is filed. Procedures for such petitions will be addressed in a separate **Federal Register** notice. Under Section 112(c)(9)(A), the Agency shall delete a source category if all pollutants emitted by that category have been deleted from the HAP list under Section 112(b)(3)(C) or Section 112(b)(3)(D).

Revisions to today's list may also arise from the establishment of lesser quantities for the definition of major sources, under Section 112(a), resulting in additional categories of major sources. Special studies required under various provisions of Section 112, or information gathered by the Agency during the regulatory development process, may also result in changes to the list.

Section 112(c)(2) requires the establishment of emission standards under Section 112(d) for every category of sources included on the initial list published pursuant to Section 112(c)(1). Emission standards established for categories listed under Section 112(c) shall be promulgated according to the schedule for standards set forth in Section 112(e). In determining where source categories should be placed on this schedule under Section 112(e), the Agency shall consider the known or anticipated adverse effects of the emitted pollutants on health and the environment; the quantity and location of emissions; and the efficiency of grouping categories according to the pollutants emitted or the processes or technologies used. The schedule for promulgation of emission standards for each category of HAP sources is to be

published, after an opportunity for comment, within 24 months of enactment.

II. Identification of Categories and Subcategories on June 21, 1991 Preliminary Draft List

That list of categories of sources was made available for public comment on June 21, 1991 (56 FR 28548). The preliminary draft list was compiled from a number of data bases, described below, each having certain strengths and weaknesses.

1. The National Emissions Data System (NEDS) is an Agency data base of reported emissions from sources emitting more than 90.7 megagrams per year (Mg/yr) [100 tons per year (tpy)] of criteria air pollutants, including volatile organic compounds (VOC) and particulate matter (PM). The sources included in NEDS are classified by unique identifiers, termed source classification codes (SCC's). Speciation profiles have been assigned to each of the SCC's. These speciation profiles are an estimate of the chemical species comprising the total VOC or PM emissions for a category. In many cases, the chemical species constituents are HAP's. A category was included on the preliminary draft list if HAP emissions were associated with a source classification code in NEDS, but only for species profiles having a data quality ranking of "A," "B," "C," or "D." Species profiles having an "E" ranking were not used, because of insufficient quality. (See Docket No. A-90-49, Items No. II-A-45 and 46 for published species profiles.)

2. Categories of the synthetic organic chemical manufacturing industry (SOCMI) were identified from literature describing SOCMI reactants and products. A SOCMI category was listed if it either manufactured a chemical on the list of HAP's or if it used one or more of the listed HAP's to produce another chemical.

3. Published production and consumption data for organic chemicals were used to identify organic chemical end-user processes emitting HAP's. There are a total of five general category groupings for which such data were used: foam blowing processes, process solvent use, polymerization processes, pesticide production, and pharmaceutical production. Production and consumption data were obtained for each chemical from readily available literature. Each end use of a chemical was identified as a category.

4. The Agency's Toxic Release Inventory System (TRIS) was a fourth source of data that was used to identify HAP emitters. The TRIS data base contains emissions data reported by individual industrial facilities as required under Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986. Emissions data in TRIS are reported on a plant wide basis. Standard Industrial Classification (SIC) Codes are reported in TRIS but the entries are usually not specific enough to identify categories of sources. For this reason, it is difficult to use the TRIS data base for identifying categories, or to determine where there is overlap between the TRIS data base and the methods described above. The TRIS data base did, however, identify plants emitting listed pollutants not identified through the methods described above.

5. The list of categories developed by using the several data sources described above was augmented by reviewing existing studies

by the Agency's Office of Air Quality Planning and Standards. A major portion of this effort consisted of reviewing data developed in support of previous **Federal Register** notices describing previous Section 112 regulatory decisions. For the most part, the methods described above had already identified most of the categories. However, in some cases additional categories were identified from these references and were added to the list.

Today's initial list in Table 1 is based on these same sources of data in addition to information supplied in response to the publication of the preliminary draft list.

III. Discussion of Major Issues and Responses to Comments

In the preamble to the June 21, 1991, preliminary draft list (56 FR 28548), comments were requested on a number of issues. Over 140 comments were received from industry representatives, environmental groups, State and local air agencies, universities, other Federal Agencies, and various other public and private interests. In general, comments were received relating to: (1) the quality and inclusiveness of the data base, (2) the definition and disaggregation of various categories of sources, (3) the need for a finding of threat of adverse health or environmental effects before listing categories of area sources, and (4) alternatives for listing categories of steam electric generators and incinerators. Following is a summary of the major comments received along with responses to these comments. The selection of particular comment responses for discussion in today's notice is intended to indicate the Agency's position on the major issues raised by the commenters. (All comments and responses are contained in Docket No. A-90-49.)

A. Delineation of Categories and Subcategories

Section 112(c)(1) states that "the Administrator shall publish...a list of all categories and subcategories of major sources and area sources." The terms "category" and "subcategory" are not defined in Section 112, nor is the relation of either of these terms defined with respect to the term "source."

In the June 21, 1991, notice, comment was requested on the appropriate distinctions the Agency should make between categories and subcategories. In addition, information was requested for the division, or disaggregation, of listed groups of sources into categories and subcategories, along with accompanying documentation.

Relationship Between Source and Category of Source

Because of the undefined relationship between source and category of sources in the CAA, this relationship needs to be defined in the context of today's initial list of categories. Section 112(a)(3) provides that "stationary source" shall have the same meaning for purposes of this section as it has under Section 111(a), which is "any building, structure, facility, or installation which emits or may emit any air pollutant." As Section 112 applies to all stationary sources emitting HAP's, any entity

covered by this section must be a building, structure, facility or installation that emits HAP's. Whether such source is considered "major" will depend upon its size and configuration, or upon the size and configuration of the larger source of which it is a part.

A "category" of sources is a group of sources having some common features suggesting that they should be regulated in the same way and on the same schedule. Thus, for example, industrial process cooling towers would be considered a source category. Each tower emitting more than the amount of HAP's provided in Section 112(a) as qualifying a source as a major source, or each tower located within a larger source emitting that amount of HAP's, would be subject to maximum achievable control technology (MACT) for major sources.

As a result, a large plant or facility, such as a refinery or chemical manufacturing plant, would clearly be a "major source," but would also comprise multiple source categories. For example, a large plant would likely contain stationary sources included within the industrial cooling tower source category, as well as sources within the process heater category, industrial boiler category, etc.

Categories having sources whose HAP emissions exceed the major source threshold in Section 112(a), or having sources that are commonly located on the premises of major sources, are categories of major sources. Conversely, categories having sources which neither exceed the major source HAP emission threshold under Section 112(a), nor are commonly located on the premises of major sources, are categories of area sources.

Use of the Term "Category" or "Subcategory"

Several commenters suggested using only the term "category" rather than both "category" and "subcategory," for various reasons. Although the language in Section 112 generally uses these terms together, seemingly interchangeably, the comments stated that there are several instances where only the term "category" is used. Sections 112(c)(9)(A) and 112(c)(9)(B)(i) provide for deleting of categories of sources only. Similarly, Section 112(f)(2)(A) obligates the Administrator to promulgate standards to mitigate residual risks only for categories of sources. In response to these comments, the Agency has decided to use the term "category" to designate all of the groupings of HAP-emitting sources in today's list. The exclusive use of the term "category" will clarify the applicable requirements of Section 112. This decision does not affect the degree of disaggregation of industry groups in today's list of categories or the authority of the Agency to distinguish among classes, types, and sizes of sources in establishing emission standards. During the standard-setting process, the Agency may in some cases find it appropriate to combine several listed categories into one, or further divide a category. This decision does not affect the Agency's authority to define subcategories of sources at a later date.

An exception to the exclusive use of the term "category" has been made in the proposed rule establishing emission standards for perchloroethylene dry cleaning facilities (56 FR 64382), wherein subcategories were defined for each category to differentiate between

the two major types of machines used in dry cleaning, i.e., "dry-to-dry" and "transfer." This is consistent with the Agency's strategy (discussed later in this Section) of identifying and listing disaggregated categories and/or appropriate subcategories as part of the rulemaking process, after gathering sufficient information to identify appropriate aggregations for standard-setting purposes.

Suggested Additions of Categories

Some commenters suggested adding specific categories to the list. In response, where the comments included reasonable documentation, the Agency has added the suggested categories.

Suggested Deletions of Categories

Many commenters suggested deleting categories that were on the draft preliminary list, for reasons summarized below.

Some commenters contended that all sources in certain categories are area sources, thereby requiring the Administrator to make a finding of threat of adverse health or environmental effect before listing those categories. The Agency agrees that such a finding of threat should precede listing categories of area sources (see Section III.B for more discussion). Where commenters demonstrated the existence of no major sources of HAP emissions within categories, those categories were deleted from the preliminary draft list, as long as no finding of threat of adverse effects was made. The Agency may list such categories as area source categories later if a finding of threat of adverse effects can be made, per Section 112(c)(3), or may list them under the area source strategy required under Section 112(k).

Some commenters contended that no sources in certain categories emitted any HAP's, and therefore should not be listed. The Agency, in response, deleted categories if a commenter provided reasonable evidence of no HAP emissions and if the Agency's own data, upon review, could not support the existence of HAP emissions.

Some commenters contended that other provisions in amended Section 112, or Section 129, either preclude the listing of specific categories, or give the Agency the discretion not to list specific categories at this time. In response, the Agency acknowledges that its discretion to list or omit some categories of sources is limited by other provisions. Therefore, the Agency has attempted to make today's list consistent with these other provisions. These various other provisions are discussed in detail in Section III.D of today's notice.

Some commenters contended that regulations exist or are being developed under other titles of the CAA or other statutes, either by EPA or other agencies, for many categories of sources on the preliminary draft list. These commenters further argued that categories subject to these other statutes should not be listed under Section 112(c)(1) and thus be subject to "dual regulation." In response, the Agency does not believe that the existence of another applicable regulation, or the imminent prospect of a regulation, either under the CAA or under another statute, gives the Agency general discretion to omit from today's list any category of sources

under Section 112(c)(1). (There are specific exceptions to this position, however, as is discussed in more detail in Sections III.D and E of today's notice.) Moreover, listing does not necessarily lead to duplicate regulation because air emission regulations issued under another statute may become the basis for the "MACT floor," which is the minimum degree of emissions reduction prescribed for new and existing sources subject to emission standards under Section 112(d).

Some commenters suggested deleting poorly defined and broadly overlapping categories of sources to avoid confusion when identifying sources subject to regulation in each category. Commenters most frequently criticized the following categories and groupings: "[product or chemical] use", "chemical intermediate," "primary and secondary metals, miscellaneous," "surface coating operations, general solvent uses," "in situ fuel use," and "TRIS production and use," the latter involving the production or use of HAP's as reported to the Agency's TRIS data base. In response, the Agency has removed a number of previously listed categories that were poorly defined and/or broadly inclusive. For example, most of the general "[product or chemical] use" categories have been deleted. As another example, the generic "waste treatment and disposal" category has been removed. As still another example, the broad category of "TRIS production and use" has likewise been deleted. Many of the operations covered under these deleted categories are still covered in today's list, but are included in the logical parent grouping instead of in a separate category. For instance, rather than listing wastewater treatment operations as part of a generic, stand-alone wastewater treatment grouping, these operations are now included under the listing of their respective production operations. Hence, even though many broad categories still remain on today's list, the Agency has eliminated many categories that were poorly defined and overlapping. (General descriptions of all categories of sources are located in Docket No. A-90-49, Item No. IV-A-55. See Section V of today's notice for more discussion of these descriptions.)

Some commenters suggested not listing categories of sources where insufficient evidence existed to demonstrate that there were any major sources in those categories. In other words, the commenters suggesting only listing categories of sources that either exceeded the quantity of HAP's required to define a major source, pursuant to Section 112(a), or which are commonly located on the premises of a major source. Upon review of all comments and the original data bases, the Agency has responded by only including categories of major sources where there was reasonable certainty that at least one stationary source in the category is a major source or where sources in the category are commonly located on the premises of major sources. In this latter regard, the Agency does not interpret the 9.07/22.7 Mg/yr (10/25 tpy) threshold in Section 112(a) to apply only to the category, itself, for purposes of listing categories of major sources. In cases where sources in the category typically emit less than this threshold, the Agency may nevertheless list any such category as a category of major sources if sources in that category are commonly associated with major sources. For example, industrial process cooling towers, which individually emit chromium emissions in amounts less than 0.907 Mg/yr

(1 tpy), are listed as a category of major sources since such towers are commonly found on the premises of petroleum refineries, chemical manufacturing plants, and other major sources. Thus, MACT standards set for the cooling tower major source category will be applicable to cooling towers that are a component of a larger major source, such as a refinery, even though no individual source in this category is itself a major source. This position is supported by the legislative history of the 1990 amendments. Senator Durenberger, one of the managers of the Senate Bill, stated that "[t]he managers' intent is...that where the entire plant is a major source, any portion thereof to which a MACT standard applies is subject to that standard regardless of the total emissions from that portion." 136 Cong. Rec. S. 16927 (October 27, 1990).

Note that any such category may also be listed as a category of area sources on today's list, if accompanied by a finding of threat of adverse effect, if the Agency elects to establish standards for sources in the same category that are not major sources. For example, chrome platers and anodizers are also listed as categories of area sources on today's list because many are not located on the premises of major sources. (The listing of categories of area sources is discussed later in section III.B.)

Appropriate Disaggregation of Categories

Many comments were received on the extent to which the Agency identified appropriate subdivisions of industry groups. Many commenters contended that insufficient or inappropriate categories were included on the draft preliminary list and that many categories on the draft list did not sufficiently differentiate among dissimilar processes based on variations in size, operations, raw materials, emissions, controllability, etc. The major rationale for further disaggregation, per the comments, are:

1. Disaggregation of broad categories affords the Agency with scheduling flexibility in promulgating standards under Section 112(d). The Agency cannot, per language in Section 112(d)(1), distinguish among classes, types, and sizes of sources within a category or subcategory in establishing standards for the purpose of delaying compliance with standards. Hence, the commenters argue that the Agency must list disaggregated categories in order to avoid having to establish standards for all categories within a broad group at the same time.

2. Disaggregation of broad categories reduces the likelihood that dissimilar categories will be considered together for the purposes of defining emission standards under Section 112(d), or when determining the need for subsequent standards to address residual risk under Section 112(f). The commenters argue that the definition of narrowly applicable categories of sources will promote more cost-effective, technically appropriate, and, in some cases, safer controls because any such controls would be based on a consideration of similar sources.

3. Disaggregation of broad categories into relatively narrow categories makes the source category deletion petition process more viable since the deletion criteria imposed under

Section 112(c)(9)(B) would have to be demonstrated for fewer sources in narrower industry groupings. Trade associations, in turn, would be better able to gather the necessary information for preparing deletion petitions if narrower industry groupings were made.

4. Disaggregation of broad categories into better resolved categories affords both industry and air agencies with a better indication of which sources may be affected by various regulatory provisions of Section 112.

In contrast to the above comments, several commenters opposed excessive disaggregation of source categories. These commenters expressed concern that some categories might be disaggregated so finely as to result in the inclusion of only a few sources, which might result in MACT floors that would not result in effective emission standards.

In response to the many comments concerning appropriate disaggregation of source categories, the Agency acknowledges potential advantages and disadvantages of defining categories either very broadly or very narrowly. Ultimately, in accordance with Section 112(d), the Agency will need to identify the "best controlled similar sources" when establishing emission standards for new sources in a category and "the best performing 12 percent" of sources when establishing emission standards for existing sources in a category. Hence, the Agency recognizes that further disaggregation of many listed categories of sources may be necessary prior to promulgation of emission standards. The Agency has the discretion to distinguish among classes, types, and sizes of sources within a category in establishing standards.

In general, the Agency has decided, at this time, in most cases, to list broad categories of major and area sources rather than very narrowly defined categories. The main reason for this decision is that, even considering the many comments received, the Agency has too little information to anticipate specific groupings of similar sources that are appropriate for defining MACT floors for the purpose of establishing standards. Criteria that may need to be considered in defining categories of similar sources include similarities in: process operations (including differences between batch and continuous operations), emissions characteristics, control device applicability and costs, safety, and opportunities for pollution prevention. The Agency anticipates that all of the above criteria, and perhaps others, can be accounted for appropriately by the Agency only after gathering significant information for each listed category of sources during the course of establishing emission standards.

The Agency is aware of the potential disadvantages of listing broad categories of sources. The Agency believes that many of these disadvantages can be adequately overcome in several ways. First, a general description of each listed category is contained in the docket accompanying today's notice (Docket No. A-90-49, Item No. IV-A-55). This description assists in defining what industry sectors, operations, and/or equipment may be included in each listed category. Second, Section 112(c) allows revisions to be made to the list, including additions and deletions, in response to public comment, new information, or through petition. In this regard, since the Agency initiates the development of standards years before expected promulgation, industry and the public have opportunities

for considerable input to the process and can learn of the Agency's intentions for standards early in the process. Third, because of anticipated revisions to the list, the broad categories on today's initial list will not necessarily represent the pool of sources that will be considered for the purposes of identifying MACT floors for establishing emission standards under Section 112(d) or for purposes of determining the need for residual risk standards under Section 112(f). In this latter regard, MACT floors may be based on smaller pools of sources in instances where categories on today's list are disaggregated later during standard setting.

The Agency acknowledges that, by listing broad categories, it loses some flexibility in scheduling standards for different operations, or subcategories, within broad categories. The reason for this, as pointed out by several commenters, is that Section 112(d) does not allow the Agency to distinguish among classes, types, and sizes of sources within a category where such action would lead to a delay of the compliance date for any source within the broad category. Hence, once a broad category is initially defined, the Agency is obligated to establish standards for the entire category according to the schedule developed under Section 112(e), regardless of how many classes, types, and sizes of sources are subsequently defined under that broad category.

While the Agency may not define subcategories within a category if such subcategories would result in a delay in compliance with standards, the Agency may, at its discretion, establish standards for listed categories or subcategories within a listed category sooner than scheduled under Section 112(e). This option gives the Agency scheduling flexibility in a manner consistent with Section 112(d)(1) and enables the Agency to consider broader categories for establishing standards and determining compliance. In this regard, the Agency may aggregate, into a single category on any revised list, categories or subcategories which have been disaggregated on the initial list. This may be done for the purpose of setting a single emission standard for the aggregated category. This would not result in the delay of the compliance date of any listed category.

The Agency also has the authority, under Section 112(i), to establish compliance dates for existing sources up to 3 years following the effective date of any emission standards. This authority also provides some scheduling flexibility if the Agency decides to disaggregate a category of sources into subcategories.

The Agency acknowledges the existence of overlap in some categories on today's list. For example, synthetic organic chemical manufacturing is listed as a category, but so are process heaters and industrial process cooling towers, which can also be found on the premises of chemical manufacturing facilities. To avoid confusion in the regulatory schedule [required under Section 112(e)] due to any such overlap in coverage, and to avoid confusion when establishing standards, a footnote has been added to today's list stating that "all listed categories are exclusive of any specific operations or processes included under other categories that are listed separately." This strategy allows the Agency to schedule the establishment of standards for overlapping categories at different times, at the Agency's discretion, based on the criteria

for scheduling in Section 112(e). Hence, in the above example, the Agency would have the discretion to schedule the promulgation of standards for process heaters and industrial process cooling towers separately from all other operations covered under the category of synthetic organic chemical manufacturing.

Consistency with Section 111 and Part C

Several commenters noted that Section 112(c)(3) requires that "to the extent possible, the categories and subcategories listed under [Section 112(c)] shall be consistent with the list of source categories established pursuant to Section 111 and Part C" of the CAA. One commenter mentioned that both major and area sources, per the language in Section 112(a), are stationary sources that have the same meaning as such term has under Section 111, i.e. "any building, structure, facility or installation which emits or may emit any air pollutant." The latter commenter contended that this definition of stationary source excludes some operations (e.g., certain applications of architectural paints and coatings) which do not conform to this definition. One commenter noted that categories defined under Section 111 and Part C represent a "high order of aggregation," and therefore, in order to be consistent with these other parts of the CAA, today's list should not identify overly "fine-grained" categories of sources. Conversely, another commenter contended that the listing under Section 111 has no relevance since there is no differentiation between major and area sources.

In response to these comments, the Agency reviewed the categories of sources established pursuant to Section 111 and Part C, along with many other data bases (see Section II), when developing the initial list in today's notice. Many of the categories of sources in Section 111 and Part C are included on today's list. Some categories in Section 111 and Part C are not on today's list because the Agency did not have reasonable evidence that they: (1) are categories of major sources, or (2) are categories of area sources which present a threat of adverse health or environmental effects warranting regulation under Section 112. In general, the level of aggregation of categories on today's list is consistent with that level inherent in Section 111 and Part C.

The categories of sources on today's list are generally consistent with the definition of stationary sources in Section 111. The Agency interprets this definition to include a wide variety operations and activities that emit HAP's, including categories of stationary sources that emit fugitive emissions. No categories of mobile sources are included on today's list.

Consistency with Categorization Under Existing Clean Air Act (CAA) Standards

Several commenters contended that the Agency, in listing categories of sources under Section 112(c), needs to consider adopting categories consistent with those already established under existing CAA regulations. Specifically, these commenters contended that today's list should conform to existing categories subject to

the Agency's new source performance standards (NSPS), (40 CFR Part 60), or in the Agency's control techniques guidelines (CTG's) for establishing reasonably available control technology (RACT). The rationale given was that this consistency would avoid confusion, unnecessary costs, and dislocation within the affected industries, and provide uniformity with the applications of the rules for the prevention of significant deterioration (PSD), NSPS, and nonattainment regulations. The commenters argued that the categories defined in setting NSPS and CTG's demonstrate reasonable subdivisions of categories already identified by the Agency as necessary for establishing appropriate controls for dissimilar processes. Hence, the commenters contend that this same level of categorization should be preserved on today's list and considered as a basis for promulgating standards under Section 112(d).

In response, the Agency agrees that it is appropriate, when establishing standards for categories of sources on today's list, to consider categories of sources already defined under existing statutes, particularly categories regulated under the CAA. The Agency intends to consider consistency with categories subject to existing standards as one of many criteria to be considered when revising today's list prior to the establishment of emission standards under Section 112(d).

Consistency with Clean Water Act Categorization Process

Several commenters suggested that the Agency should use, as a starting point, categories of sources identified for effluent limitation guidelines under the Clean Water Act (CWA). The commenters contended that the lessons learned in the source categorization process under the CWA underscore the importance of identifying appropriate categories of sources for which specific emissions standards may need to be developed.

When compiling today's initial list, the Agency did not adopt the categories of sources identified under the effluent limitation guidelines under the CWA. This decision was made for two reasons. First, the Agency made the decision not to define overly narrow categories in this initial list (see earlier discussion in Section III). Second, the Agency is not certain, at this time, whether categories, identified for purposes relating to water effluent standards, would be appropriate for establishing air standards. Nevertheless, the Agency intends to consider the category definitions used in setting effluent guidelines when subsequently revising today's initial list and when developing emission standards.

B. Listing of Categories of Area Sources

Section 112(c)(1) of the CAA Amendments of 1990 requires the Agency to publish a list of all categories of major sources and area sources. This requirement for listing categories of area sources is modified in Section 112(c)(3) with language stating:
the Administrator shall list...each category or subcategory of area sources which the Administrator finds presents a threat of adverse effects to human health or the environment (by such sources

individually or in the aggregate) warranting regulation under this section.

Section 112(c)(3) also requires that the Agency shall, not later than 5 years after the date of enactment of the CAA Amendments of 1990 and pursuant to Section 112(k)(3)(B), list categories of specific HAP's presenting a health threat in urban areas. Section 112(c)(3) further requires that, within 10 years after enactment of the CAA Amendments, the Agency must ensure that categories of certain area sources are subject to regulation, according to emission and risk reduction criteria prescribed in Sections 112(c) and (k). The categories of area sources on today's initial list of categories of area sources do not constitute completion of this requirement.

There are other requirements in Section 112 that may directly or indirectly result in the listing and promulgation of standards for categories of area sources. Section 112(c)(6) requires, by 1995, the listing of categories of sources of specific pollutants (alkylated lead compounds, polycyclic organic matter, hexachlorobenzene, mercury, polychlorinated biphenyls, 2,3,7,8-tetrachlorodi- benzofurans, and 2,3,7,8-tetrachlorodibenzo-p-dioxin), assuring that sources accounting for 90 percent or more of the aggregate emissions of each pollutant are subject to standards within 10 years of enactment of the CAA Amendments. Section 112(k) requires the listing of categories of area sources as part of a national strategy to reduce emissions of not less than 30 HAP's and to achieve a reduction in cancer incidence of not less than 75 percent. Studies or analyses performed as part of the Great Lakes and Coastal Waters program under Section 112(m), or as part of other studies under Section 112 involving mercury emissions, oil and gas wells and pipeline facilities, hydrogen sulfide, and hydrofluoric acid, may all potentially result in the listing of additional categories of area sources at some later date.

Alternative Approaches for Listing Categories of Area Sources

In the draft preliminary list (56 FR 28548), many categories of area sources were listed and no distinction was made between categories of major and area sources. The Agency solicited comments on three approaches under consideration for addressing categories of area sources on today's list:

1. Constrain the list to include only categories of major sources and categories of area sources that are sufficiently well characterized to permit a finding of threat of adverse effects. Additional categories of area sources would be subsequently added at some later date when sufficient data were gathered to make a finding of threat of adverse effect.

2. Make an interim finding that all categories of area sources should be listed by virtue of any emissions of HAP's, but later delete any categories determined to be inappropriately listed, using the source category deletion process in Section 112(c)(9)(B).

3. Develop a finding of threat of adverse effects that is based on limited available data that could be applied to all identified categories of area sources on the preliminary draft list. This

finding would be less rigorous than the first approach due to data limitations and available time. This approach would result in a more comprehensive list than envisioned in the first approach.

Many comments were received on the approach that should be taken for including categories of area sources on today's list. The overwhelming majority of commenters, particularly industry representatives, favored the first approach cited above requiring a detailed finding of threat of adverse effects before listing a category of area sources. Many commenters contended that the language of Section 112(c) clearly requires such a finding. Many of these same commenters further contended that Congress clearly did not intend a listing approach similar to the second or third options listed above. These commenters cited as evidence the requirement, both under Sections 112(c) and 112(k), for an area source program and for specific reductions in area source emissions and associated cancer incidence only after considerable study. Furthermore, if no finding or a less rigorous finding were utilized for listing categories of area sources, these commenters asserted that the Agency and potentially regulated sources would be overwhelmed with rigid regulatory obligations bearing little relation to HAP emissions, exposures, or risks. Moreover, these commenters asserted that this course of action might result in the development and evaluation of many unneeded and onerous petitions to delete categories of sources.

Several commenters supported the second approach cited above wherein all categories of area sources are listed based on any level of HAP emissions. The rationale given by the commenters was that this approach would ensure that all categories of area sources would ultimately be examined before deletion from the list.

Several commenters suggested considering a *de minimis* emission cutoff so that very small sources within a category would not be subject to standards. Such a *de minimis* level could be defined specifically for each category of area sources or defined generically for all categories of area sources. The purpose of this, per the commenters, would be to assure that industry and Agency resources are not expended on sources that pose negligible risk to human health or the environment.

In response to these comments, the Agency agrees that the language of Section 112(c)(3) clearly requires that a finding be made of threat of adverse effects to human health or the environment warranting regulation under Section 112 in order for a category of area sources to be listed. Hence, the Agency has removed all categories from today's list for which: (1) the available information indicates that the category contains only area sources, and (2) the Agency has insufficient information at this time to make a finding of threat of adverse effects warranting regulation. The Agency has listed today a number of categories of area sources for which the Agency has adequate information to make a finding of threat of adverse effects warranting regulation under Section 112. A finding of threat of adverse effects for these listed area source categories is presented in Section IV in today's notice.

Regarding the commenter's recommendation that the Agency consider *de minimis* levels, the Agency has the discretion, when establishing standards, to distinguish among classes, types, and

sizes of sources within categories in setting standards under Section 112(d)(2). The Agency shall consider costs and non-air quality health and environmental impacts and energy requirements. In addition, the Agency may set generally available control technology (GACT) standards for area sources under Section 112(d)(5). The Agency considers this discretion sufficient to avoid establishing unwarranted and inappropriate emission standards for very small emitters.

Applicability of Emission Standards to Categories of Major and Area Sources

The Agency identifies a category of major sources as one characterized either by the presence of at least one major source in the category, based on the HAP emission threshold defined in Section 112(a), or by the common association of sources in the category with major sources. Because of this, all sources in many listed categories of major sources may not be major sources, and some will be area sources. It is the Agency's intent that if no finding of threat of adverse effects warranting regulation is made, then only major sources in a listed category are subject to regulation under Section 112. A footnote accompanies the list of categories of major sources in today's list indicating that only major sources within any category shall be subject to emission standards under Section 112 unless a finding is made, for the area sources in a category, of threat of adverse effects to human health or the environment warranting regulation under Section 112.

In certain cases the Agency has determined, or may determine during the standards development process, that the area sources in a listed category of sources warrant regulation under Section 112. In such cases, the Agency may make a finding of threat of adverse effects and add these categories of area sources to the list. As an alternative, the Agency may establish a lesser quantity emission rate for some or all HAP's, under Section 112(a), which could have the effect of enabling the Agency to list certain categories as major sources that only contained area sources before the establishment of lesser quantity emission rates.

Alternatives for making a finding of threat of adverse effects

Most commenters contended that a finding of threat of adverse health or environmental effects is necessary under the language of Section 112(c)(3); however, few comments were received on the specific nature of the finding. One commenter suggested using the deletion criteria in Section 112(c)(9)(B) as the basis for this finding. The rationale for this comment is that, because those same criteria must be used by a petitioner to demonstrate that a category of sources should be deleted, they should be used to add categories of area sources. For example, since a petitioner would have to demonstrate that no source in a category caused a cancer risk exceeding one in a million to the maximally exposed individual in order to have a category of sources deleted from the list, the commenter argued that the Agency should have to show, conversely, that at least one source in a category exceeded this same risk level

in order to demonstrate a threat of adverse health effects and list a category of area sources. In response to this comment, the Agency interprets the broad language of Section 112 as allowing risk and other factors to be assessed in determining if a threat of adverse effects exists warranting regulation under Section 112.

The Agency's criteria for area source findings, and the findings for each area source category included on today's list, are presented in Section IV later in this notice.

C. Data Base Quality

Many comments were received on the quality of the data base used in developing the preliminary draft list published on June 21, 1991 (56 FR 28548). Most commonly, the commenters identified particular aspects of the data base that they felt were inadequate for listing many categories of sources.

Many commenters indicated that the Agency had inadequate data to demonstrate that at least one source in many categories was, in fact, a major source. In this regard, many commenters argued that the Agency needs to demonstrate the existence of at least one major source in a category before that category could be listed as a category of major sources.

In response, the Agency agrees that, in order to be listed as a category of major sources: (1) there must be at least one major source in that category, (2) or, as discussed in Section III.A of today's notice, sources in the category of concern must commonly be located on the premises (i.e., within the contiguous area under common control) of a major source, as defined in Section 112(a). Hence, when reviewing the data base used to develop the preliminary draft list, in light of comments received in this regard, the Agency considered the adequacy of the data showing the existence of at least one major source in each category or the common association of a category with major sources. Where reasonable evidence was available suggesting that these criteria are met, that category was included as a category of major sources on today's list. In many instances, the Agency sought out additional data from the Agency's TRIS and other internal Agency sources to confirm the existence of a major source in each listed category of major sources or the common location of a category on the premises of major sources.

As discussed in Section II in today's notice, species profiles were used as an indicator of HAP emissions when compiling the preliminary draft list. These profiles have quality rankings ranging from "A" to "E," with "A" reflecting the best profile quality and "E" reflecting the poorest profile quality. Many comments were received concerning the use of species profiles with lesser quality for estimating HAP emissions. At the outset, profiles having "E" quality rankings were not used at all by the Agency because of insufficient quality. Some commenters suggested not using "D" ranked profiles, which were based on measured emissions from a single source or engineering calculations from more than one source. Some commenters suggested only using the highest quality species profiles that are ranked "A." Some commenters pointed out that particular species profiles, no matter the quality ranking, were inapplicable to the category to which they were applied.

In response to comments relating to species profiles, the Agency continues to believe that species profiles are an appropriate tool for identifying sources of HAP emissions and for estimating HAP emissions, when applied to particulate and volatile organic matter emissions. Hence, profiles having quality rankings of "A" through "D" were still considered in preparing today's list, with several qualifications. First, the Agency agrees that some species profiles were inappropriately applied to some categories on the preliminary draft list. Any categories that were included on the preliminary draft list, based solely on inappropriate profiles, were not included on today's list. Second, all categories on the preliminary draft list, regardless of profile quality ranking, were reviewed before being retained on today's list. Some of these categories are not included on today's list because the Agency could not verify the existence of at least one major source within the categories or the common location of the categories on the premises of major sources.

D. Consistency With Section 112 and Section 129 Provisions Relating to Specific Categories of Sources

Listing of Electric Utility Steam Generating Units

Many commenters contended that electric utility steam generating units should not be listed because of provisions under Section 112(n)(1) requiring the Agency to perform a study of the hazards to public health from these units. Section 112(n)(1) further states that the Agency shall regulate these units under Section 112 only if the Agency finds such regulation appropriate and necessary after considering the results of the study.

Some commenters suggested various reasons for listing electric utility steam generating units on today's initial list. These commenters stated that Section 112(n)(1) does not preclude listing utilities. Only regulation of electric utility steam generating units is precluded before the Agency reviews the results of the requisite electric utility study. Other commenters also raised a fairness issue. These commenters contended that electric utility steam generating units should certainly be listed if smaller combustion units had to be listed and subject to standards. Some of these same commenters suggested, as an alternative, that non-utility combustion units should be included in the utility study, and not listed until the results of utility study were available.

In response to these comments, the Agency agrees that a study of hazards from electric utility steam generating units is required before regulating these units. Given this requirement, the Agency sees little benefit in listing these units unless this study demonstrates significant public health hazards, warranting regulation. Hence, electric utility steam generating units, as defined in Section 112(a)(8), are not included on today's initial list of categories of major and area sources. The Agency has initiated the study of these units, as required under Section 112(n)(1).

In response to comments suggesting that the Agency delete non-utility boilers from today's list, the Agency does not have the authority under Section 112 to exclude other combustion units (except

for certain solid waste incineration units, as described in the following subsection). The provisions of Section 112(n)(1) only apply to electric utility steam generating units, as defined in Section 112(a)(8). Moreover, the Agency has determined that several categories of non-utility boilers and units not meeting the definition of an electric utility steam generating unit are categories of major sources and are thus required to be included on today's list.

Listing of Solid Waste Incinerator Units

The term solid waste incineration unit, under Section 129(g)(1), means "a distinct operating unit of any facility which combusts any solid waste material from commercial or industrial establishments or the general public (including single and multiple residences, hotels, and motels)." Section 129(h)(2) states that "no solid waste incineration unit subject to performance standards under [Section 129] and Section 111 shall be subject to standards under Section 112(d) of this Act." The Agency interprets Section 129(h)(2) to preclude the inclusion on today's list (or any revision of this list) of solid waste incineration units combusting municipal waste, hospital waste, medical waste, infectious waste, commercial or industrial waste. The rationale for this is that Section 129(a) specifically requires the Agency to promulgate standards for units combusting these particular wastes under Section 111 and Section 129. The Agency interprets Section 129 as not requiring standards to be promulgated for sewage sludge incineration units under Section 129, so these units are included on today's list.

Section 129(g)(5) states that "an incineration unit shall not be considered to be combusting municipal waste for purposes of Section 111 or [Section 129] if it combusts a fuel feed stream, 30 percent or less of the weight of which is comprised, in aggregate, of municipal waste." The Agency interprets this as allowing standards to be established for fuel combustion categories on today's list that combust up to 30 percent municipal waste. Today's list does not identify specific fuels or fuel mixtures associated with categories of fuel combustion.

Provisions in Section 129(g)(1) exclude certain other categories of combustion from inclusion as solid waste incineration units. Excluded are metal recovery facilities (including primary or secondary smelters), qualifying cogeneration facilities burning homogeneous waste (such as tires, used oil, but not including refuse-derived fuel), certain air curtain incinerators, and incinerators permitted under Section 3005 of the Solid Waste Disposal Act [Pub. L. 94-580]. Any such combustion units are subject to listing under Section 112(c) if all other listing criteria in Section 112 are met. Of these categories, today's list includes several categories of smelters and hazardous waste incinerators.

No solid waste incineration units are included on today's list as categories of area sources.

A number of commenters agreed with the Agency's earlier position that various types of solid waste incinerators should not be included on today's list of categories because of the exclusion in Section 129.

As stated above, the Agency has not changed this position for most types of incineration in this notice.

Several commenters argued that sewage sludge incinerators should not be listed because they are already regulated under the CWA and by NSPS and NESHAP's. In response, the Agency does not consider sewage sludge incineration units to be covered under Section 129, so it has the authority to list and set standards for these units under Section 112. The Agency does not have the discretion to omit this category because of existing regulations under the CWA or existing NSPS. Moreover, Section 112(c)(4) gives the Agency the authority to list any category of sources previously regulated by NESHAP's before the CAA Amendments of 1990.

Listing of Research Facilities

The Agency received two comments regarding the listing of research facilities under Section 112(c)(7). Both commenters urged the Agency to recognize the unique qualities of research laboratories as expressed in Section 112. Specifically, Section 112(c)(7) requires the Agency "to establish a separate category covering research or laboratory facilities, as necessary in order to assure the equitable treatment of such facilities.

The preliminary draft list of categories of sources did not include a category for research facilities or laboratories. At the time of publication of the draft list, the Agency had insufficient information to list research facilities as a category of major sources. The Agency did not receive, through public comment, any specific emissions data that support the addition of a category for research facilities. Due to this lack of evidence, the Agency did not add research facilities or laboratories to today's initial list of categories of sources.

Listing of Boat Manufacturing

The Agency has identified major sources of HAP emissions in the category of boat manufacturing, and has added boat manufacturing as a category of major sources on today's list.

Section 112(c)(8) of the CAA requires the Agency to list boat manufacturing as a separate subcategory, when establishing standards for styrene. However, as explained earlier in today's notice, the Agency has interpreted the terms "subcategory" and "category" to be interchangeable in the context of today's initial list. Hence, boat manufacturing has been listed as a category of major sources. This meets the intent of the CAA that boat manufacturing be considered separately from any other category when establishing standards.

Listing of Radionuclide Emitters

The Agency received several comments on the listing of radionuclide emitters. The commenters noted that the Agency had omitted all categories of radionuclide emitters from the preliminary draft list and suggested the addition of underground and surface uranium mines, Department of Energy (DOE) facilities, as well as

facilities already licensed by the Nuclear Regulatory Commission (NRC).

Categories of radionuclide emitters are not included on today's initial list because of several provisions in Section 112. At the outset, the Agency notes that no source of radionuclide emissions meets the major source threshold for HAP's. Section 112(a)(1) allows the Agency to define criteria for differentiating between major and area sources of radionuclide emitters that are different from the weight-based thresholds established for other HAP's. At this time, the Agency has not decided how to define these different criteria. Hence, because categories of major and area sources of radionuclide emissions are not differentiated at this time, and cannot be differentiated based on the 9.07/22.7 Mg/yr (10/25 tpy) threshold in Section 112(a) or any existing lesser quantity emission rates, the Agency considers their inclusion on today's list inappropriate. Categories of radionuclide emitters may be added to the list at a later date.

Section 112(d)(9) authorizes the Agency not to regulate, under Section 112, emissions from facilities licensed by the NRC if the Agency first determines by rule that the regulatory program implemented by the NRC provides an ample margin of safety to protect public health. At this time, the Agency is engaged in a variety of information gathering and rulemaking activities to determine whether the NRC programs are sufficient to provide an ample margin of safety. For instance, the Agency has proposed to rescind regulatory NESHAPS for nuclear power reactors and non-operational uranium mill tailing disposal sites licensed by NRC and is gathering information as to whether NESHAPS are necessary for the remaining NRC licensees. Hence, no categories of sources regulated by the NRC are listed on today's list because of radionuclide emissions. The Agency will decide whether or not to add any NRC-licensed categories once sufficient information has been gathered.

Section 112(q)(2) states that no standard shall be established under Section 112, as amended, for radionuclide emissions from elemental phosphorous plants, grate calcination elemental phosphorous plants, phosphogypsum stacks, or any subcategory of the foregoing. Under Section 112(q)(2), these source categories continue to be governed by the previous version of Section 112. None of these categories has been listed due to emissions of radionuclides.

Section 112(q)(3) gives the Agency the discretion to regulate radionuclide emissions from: (1) non-DOE facilities which are not licensed by the NRC, (2) coal-fired utility and industrial boilers, (3) underground and surface uranium mines, and (4) disposal of uranium mill tailings piles. These source categories are subject to NESHAPS and general rulemakings under the previous version of the CAA. The Agency has not listed any of these categories of sources due to their radionuclide emissions on today's list.

Listing of Coke Ovens

The Agency received few comments regarding the listing of coke ovens. The CAA Amendments, under Section 112(d)(8), instruct the Agency to "promulgate regulations establishing emission

standards...for coke oven batteries." In response, the Agency listed several categories of coke oven operations in the preliminary draft list under the industry group "ferrous metals processing."

Listing of Publicly Owned Treatment Works

In the preliminary draft list, the Agency included a category for "wastewater treatment systems" under the industry group "waste treatment and disposal." This category included both publicly owned treatment works (POTW's) and industrial waste water treatment plants.

Many commenters argued that the category "wastewater treatment systems" was too broad to address realistically the wide variation in existing facilities and, at a minimum, should be divided into two categories: POTW's and industrial waste water treatment plants. In addition, many commenters argued that this broad category overlapped with industry categories listed elsewhere. For example, the broad categories listed in the industry group "production of synthetic organic chemicals" already encompass wastewater treatment systems as well as many other operations such as process vents and equipment leaks.

In response to these comments, the Agency has eliminated the category "wastewater treatment systems." The Agency agrees that industrial wastewater treatment plants are logically covered under the respective industry groups on today's list, and do not need to be listed separately.

Two provisions in Section 112 affect the listing of POTW's. Section 112(e)(5) requires the Agency to promulgate standards for POTW's, pursuant to Section 112(d), not later than 5 years after the date of enactment of the CAA. Section 112(n)(3) states that the Agency may provide for control measures that include: (1) pretreatment of discharges causing HAP emissions or (2) process or product substitutions or limitations that may be effective in reducing such emissions.

The Agency has included a category of "POTW emissions" on today's list. The Agency has the discretion, under Section 112(n)(3), to conduct studies to characterize POTW emissions and to demonstrate control measures, considering alternatives involving pretreatment of discharges and process or product substitutions or limitations. The Agency intends to conduct studies to characterize HAP emissions from industries discharging to POTW's and to identify industrial, commercial and residential discharges that contribute to such emissions. The Agency has the authority, under Section 112(n)(3), to consider the efficacy of regulations involving pretreatment of discharges. When such information is obtained, the Agency will add to the source category list, if necessary, to insure regulation of POTW emissions.

Listing of Oil and Gas Wells and Pipeline Facilities

The Agency received numerous comments regarding the category "oil and gas production" in the preliminary draft list. The commenters stated that based upon Section 112(n)(4), the Agency had erroneously included oil and gas production wells in the oil and gas production category. Commenters generally urged the Agency to delete production wells as either a category of area or major sources.

The Agency agrees with the commenters that the CAA Amendments mandate certain limitations regarding the listing of oil and gas production wells. Section 112(n)(4) limits the Agency's ability to list oil and gas wells (and associated equipment) as categories of major or area sources.

Section 112(n)(4)(A) specifically requires that each oil and gas well (and associated equipment), pipeline compressor, and pump station at a source must be considered individually, rather than in aggregate across a common area under contiguous control, to determine whether such units or stations are major sources. The Agency has evidence that certain individual units can exceed the major source threshold. Such units would not be excluded from being a major source under Section 112(n)(4)(A).

Section 112(n)(4)(B) requires the Agency to determine that HAP emissions from oil and gas production wells (with its associated equipment), present more than a negligible risk of adverse effects to public health before these categories can be listed as categories of area sources. Section 112(n)(4)(B) further limits any such category to only include sources located in any metropolitan statistical area with a population exceeding 1 million. The Agency has not made such a determination at this time. Hence, oil and gas wells (with its associated equipment), pipeline compressors, and pump stations are not listed as categories of area sources on today's list.

E. Listing of Regulated Categories

Several commenters questioned the listing of some categories of sources currently regulated under the CAA or another statute. In some cases, various commenters pointed out that certain categories of sources on the draft list are (or will be) controlled by NSPS under Section 111, by previously defined NESHAP's under Section 112 before the CAA Amendments of 1990, by CTG's, under the CWA, under the Resources Conservation and Recovery Act (RCRA), or under the Federal Insecticide, Fungicide and Rodenticide Act. The commenters contended that "dual regulation" would cause confusion and hardship to the regulated community.

In response to these comments, the Agency has no general discretion, under Section 112, to exclude categories of sources from today's list if they are subject to other statutes. Moreover, with a few exceptions, discussed below, the Agency has no discretion to exclude categories that are subject to other CAA standards.

Section 112(c)(4) states that the Agency "may, at the Administrator's discretion, list any category...previously regulated under this section as in effect before the date of enactment of the CAA Amendments of 1990." This gives the Agency the discretion to list categories of sources if the Administrator decides that existing NESHAP's are inadequate. However, the "savings provision" under Section 112(q)(1) obligates the Agency to review and, if appropriate, revise existing NESHAP's to comply with the requirements of Section 112(d) within 10 years.

Section 112(n)(7) obligates the Agency to take into account and be consistent with any regulations under RCRA, also known as the Solid Waste Disposal Act.

The Agency has declined to list categories of radionuclide emitters in light of the CAA statutory provisions, discussed in Section III.D of this notice, and because the Agency is still developing the criteria for differentiating between major and area sources of radionuclide emitters. Likewise, as described in Section III.D of this notice, the language in Section 129(h)(2) precludes the listing of many categories of solid waste incineration units that are subject to standards under Sections 111 and 129 of the CAA.

Marine vessel loading and unloading facilities are not listed on today's list because the Agency intends to regulate HAP's as well as emissions of VOC's and other pollutants under authority of Section 183(f) of the CAA. Section 183(f) requires that the Agency, in conjunction with the Coast Guard, establish emissions standards for emissions of "VOC's and any other air pollutant from loading and unloading tank vessels." Given the Congressional mandate to consult with the Coast Guard and consider safety impacts in developing tank vessel standards, the Agency believes it advisable to address all tank vessel emissions in a comprehensive, multi-faceted manner under Section 183(f).

In response to comments regarding "dual regulation," the Agency notes that the establishment of standards under Section 112 does not necessarily lead to duplicate regulation. This is because air emission regulations issued under another statute would likely become the basis for MACT floors under Section 112, which are defined by evaluating best performing existing sources within any category or best controlled similar sources for new sources.

F. Judicial Review of List

Section 112(e)(4) states notwithstanding Section 307 of this Act [dealing with administrative proceedings and judicial review], no action of the Administrator...listing a source category or subcategory under subsection (c) shall be a final Agency action subject to judicial review, except that any such action may be reviewed under Section 307 when the Administrator issues emission standards for such pollutant or category.
Therefore, today's list is not a final Agency action and is not subject to judicial review.

IV. Finding of Threat of Adverse Effects for Categories of Area Sources

As discussed earlier in Section III.B of this notice, in order to list categories of area sources the Agency must find a threat of adverse health or environmental effects warranting regulation under Section 112. The Agency hereby lists the following categories of area sources for which a finding of threat of adverse effects warranting regulation under Section 112 has been made: commercial sterilizers using ethylene oxide, chromium electroplaters and anodizers, perchloroethylene dry cleaners, halogenated solvent cleaners, and asbestos processing. Additional area source categories may be listed from time to time as sufficient data become

available to support a finding of threat of adverse effects warranting regulation under Section 112.

Today's list includes some source categories which are listed twice, once for the major sources within the category and once for the area sources. This is necessary because some categories are comprised of both area and major sources. Where categories of area sources are listed, a finding is required of threat of adverse effects warranting regulation under Section 112.

The language of Section 112 provides limited guidance on the nature of the finding of "threat of adverse effects to human health or the environment...warranting regulation under [Section 112]." The term "adverse environmental effect" is defined in Section 112(a) as any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas.

Section 112(a) contains no concomitant definition of adverse health effect. The area source provisions of Section 112(k), however, are closely linked to Section 112(c) and state that health effects considered under this program shall include, but not be limited to, carcinogenicity, mutagenicity, teratogenicity, neurotoxicity, reproductive dysfunction and other acute and chronic effects including the role of such pollutants as precursors of ozone or acid aerosol formation.

Moreover, the finding is one of a threat of adverse effect, not a demonstration of the adverse effect, per se.

In the findings accompanying the area source listings in today's notice, quantitative assessments of risk are an important consideration in assessing significant threats of adverse health effects. Quantitative risk assessment, in this context, means the estimation of a mathematical probability of an individual or population being subject to some adverse health effect, such as cancer. The Agency has historically developed assessments of cancer risks, both to maximally exposed individuals and populations, as part of its regulatory actions under Section 112. Population risks are expressed in terms of the total number of cancer cases (i.e., cancer incidence) that could be expected to occur in a given time within a prescribed area, considering the exposure of the population within the area to ambient concentrations of toxic air pollutants. Most typically, in these findings, nationwide cancer incidence is expressed on an annual basis (i.e., cases per year). In contrast, a maximum individual "lifetime" risk is expressed as the risk of contracting cancer associated with an exposure for 70 years (an assumed life span) to the maximum, modeled, long-term concentration of the listed HAP's in the proximity of emitting sources. (The findings in today's notice do not demonstrate any threat of adverse environmental effects, only human health effects; future findings may be based on environmental effects as the appropriate information becomes available.)

Section 112(c) of the CAA Amendments of 1990 does not offer a "bright line" test for the Agency to use in making an area source finding. Instead, considering the language cited above, the Agency believes it has discretion to consider a range of health effects

endpoints and exposure criteria in making a finding of a threat of adverse effects. In the findings for the listed categories of area sources given later in today's notice, the Agency considers factors such as the number of sources in a category, the quantity of emissions from sources individually or in aggregate, the toxicity of the HAP emissions, the potential for individual and population exposures and risks, and the geographical distribution of sources.

In determining what constitutes a significant threat of adverse effects, the Agency considers the risk criteria developed in the establishment of the benzene NESHAP in light of the DC Circuit Court's decision on the Agency's vinyl chloride emission standards to be an important precedent (*Natural Resources Defense Council, Inc.* v. *EPA*, 824 F.2d at 1146 [1987])(the "*Vinyl Chloride*" decision). In the September 14, 1989 **Federal Register** implementing the *Vinyl Chloride* decision (54 FR 38044), the Agency presents an approach for providing for the protection of public health with an ample margin of safety under Section 112.

In protecting public health with an ample margin of safety under Section 112, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level of no higher than approximately 1 in 1 million and (2) limiting to no higher than approximately 1 in 10 thousand the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

In the September 14, 1989 **Federal Register**, the Agency indicates that, as a first step in this process, it considers incidence (i.e., the numbers of persons estimated to suffer cancer or other serious health effects as a result of exposure to a pollutant) to be an important measure of the health risk.

The EPA believes that even if the MIR (maximum individual risk) is low, the overall risk may be unacceptable if significant numbers of persons are exposed to a hazardous air pollutant, resulting in a significant estimated incidence. Consideration of this factor would not be reduced to a specific limit or range...but estimated incidence would be weighed along with other health risk information in judging acceptability.

In the September 14, 1989 **Federal Register**, the Agency indicates that attention will also be accorded to the weight of evidence of the potential human carcinogenicity or other health effects of a pollutant. The uncertainties, gaps in data, and science policy assumptions associated with any risk measures must also be weighed. As a second step in determining the appropriate level of control, the Agency will examine both these factors above and other relevant factors such as the extent of exposure, the incidence of adverse effect, and the cost of control. The Agency will use these factors in determining whether a regulation provides an ample margin of safety. The Agency believes that consideration of these additional factors is also appropriate in determining whether a category of area sources poses a significant threat of adverse health effects warranting regulation under Section 112. This interpretation,

however, does not supersede the statutory requirements of the area source program under Section 112(k).

In summary, the Agency will not examine a single parameter or measure for making a finding of threat of adverse effects for the purpose of listing any category of area sources. Instead, in determining that a significant threat of adverse effects exists warranting regulation under Section 112, the Agency will look to a collection of parameters and measures involving emissions, toxicities, numbers of facilities, the reasonableness of control measures, population exposures to HAP emissions, individual risks and population incidence. In determining what constitutes a significant threat, the Agency will consider the criteria for determining acceptable risks and an ample margin of safety arising from the establishment of benzene NESHAP's in light of the *Vinyl Chloride* decision. An important criterion in determining a significant threat is evidence that a category of area sources may pose a cancer risk to the maximally exposed individual(s) in excess of one in 10,000. Another important criterion is evidence that significant cancer incidence may result due to many persons exposed to HAP emissions from a category of area sources, even if the maximum individual risk to any individual is low. In addition, the Agency may consider a number of additional factors as appropriate.

As reflected in its interpretation of the *Vinyl Chloride* decision (54 FR 38044), the Agency recognizes uncertainties in current estimates of risk based on maximum, modeled concentrations and the use of conservative, upperbound risk assumptions (such as continuous exposures for 24 hours per day for 70 years). The Agency acknowledges that current cancer risk estimates do not necessarily reflect the true risk, but often represent a conservative risk level which is an upperbound that is unlikely to be exceeded. The Agency intends to improve its risk assessment procedures in accordance with guidance from its own Risk Assessment Council and through the risk assessment studies required under Sections 112(f), 112(o), and 303 of Title III of the CAAA.

Each finding detailed below is based on qualitative and quantitative information demonstrating a significant threat of adverse effects to health or the environment by such categories of sources individually or in the aggregate, as required under Section 112(c)(3). Most data used in the area source findings were gathered from published reports. Summary information only is presented in each finding in today's notice. Information from references supporting today's findings is available in the docket (Docket No. A-90-49, Item No. IV-B-44).

A. Finding of Threat of Adverse Effects for Category of Commercial Sterilizers Using Ethylene Oxide

Ethylene oxide is widely used as a sterilant/fumigant in the production of medical equipment and in sterilization and fumigation operations. Current estimates indicate that there are about 190 facilities in the U. S. performing ethylene oxide commercial sterilization. Commercial sterilization is performed by medical equipment suppliers, pharmaceutical manufacturers, spice manufacturers, contract sterilizers, libraries, museums and

archives, and laboratories. Emissions of ethylene oxide are estimated at 1.1 million kg/yr (2.4 million lb/yr) from commercial facilities.

The adverse health effects from ethylene oxide are well documented. Numerous studies exist which attest to the health effects from both acute and chronic exposures to ethylene oxide. Headaches, nausea, vomiting, and/or respiratory irritation are common symptoms resulting from acute inhalation exposure to ethylene oxide. Studies of subchronic and chronic exposures indicate that ethylene oxide has serious long-term effects. Plant workers exposed to high levels of ethylene oxide over a 1-week to 3-month periods reported the development of neurological abnormalities and cataracts.

Animal experiments and human epidemiological studies indicate that ethylene oxide is a probable human carcinogen. Animals exposed to ethylene oxide over long periods of time exhibit increased incidence of tumors, including brain neoplasms, and leukemia. Studies of persons occupationally exposed to ethylene oxide indicate the possibility of a significant association between exposure and cancer incidence, for both stomach cancer and leukemia.

The reproductive and teratogenic effects of ethylene oxide inhalation have been examined in laboratory animals. Studies indicate that exposure to ethylene oxide produces maternal toxicity, depression of fetal weight gain, fetal death, and fetal malformation in females and reduced sperm numbers and motility in males. Recent studies on ethylene oxide have also examined the mutagenicity associated with ethylene oxide and the ability of ethylene oxide-induced genetic damage to cause adverse reproductive impacts. Ethylene oxide has been shown to cause mutations in mammalian cells, both somatic and germ.

Due to the adverse effects associated with ethylene oxide observed in both animals and humans, the Agency is concerned about ethylene oxide emissions as well as the presence of ethylene oxide in the ambient air. Studies have confirmed the presence of ethylene oxide above background concentrations in many areas of the nation, including areas of high population. Many ethylene oxide sterilizers are located near population centers and may pose a threat to the surrounding public.

The Agency has conducted nationwide analyses of emissions, exposures, and cancer risks associated with commercial sterilizers using ethylene oxide. The Agency estimates that as many as three increased cancer cases arise in the U. S. annually from exposure to commercial sterilizers using ethylene oxide. The Agency estimates that the maximum individual lifetime cancer risk associated with any commercial sterilizer is as high as one in 100 (1×10^{-2}). Furthermore, about 120,000 persons living in the proximity of commercial sterilizers are estimated to be subject to upper-bound lifetime individual risks possibly in excess of one in 10,000 (1×10^{-4}); about 2,300,000 persons are subject to lifetime individual risks possibly in excess of one in 100,000 (1×10^{-5}); and about 35,000,000 persons -- or about one sixth the entire U. S. population -- are subject to lifetime individual risks exceeding one in 1,000,000 (1×10^{-6}).

Currently, there are no Federal regulations covering ethylene oxide sterilizer emissions, except Occupational Safety and Health Administration (OSHA) requirements for workplace exposure levels. Sixteen States and Puerto Rico have developed regulations; however, no national regulations currently exist that address all ethylene oxide emissions from commercial sterilizers.

Since there are few commercial sterilizers that exceed 9.07 Mg/yr (10 tpy) of ethylene oxide emissions, they must be listed as categories of area sources in order to be regulated under Section 112(d). The Agency hereby finds that the high emission levels, documented exposures, and known and suspected adverse health effects associated with ethylene oxide emissions from commercial sterilizers present a threat of adverse effects to human health. The Agency thus includes this category on the list of categories of area sources on today's list.

B. Finding of Threat of Adverse Effects for Categories of Chromium Electroplaters and Anodizers

The chromium electroplating industry consists of hard chromium electroplaters, decorative chromium electroplaters, and anodizers. Hard chromium electroplating involves coating a base metal, such as steel, with a relatively thick layer of chromium, in order to provide a wear resistant surface. Hard plating is most often used on items such as hydraulic cylinders and rods, zinc die castings, plastic molds, engine components, and marine hardware. Decorative plating, on the other hand, usually plates the base metal (i.e., brass, steel, aluminum, or plastic) with a layer of nickel and then a thin layer of chromium in order to produce a bright, wear- and tarnish-resistant surface. Decorative plating is most often used on automotive trim, bicycles, hand tools, and plumbing fixtures. A third type of chromium electroplater, anodizers, uses chromic acid to form an oxide layer on aluminum to provide corrosion resistance. Chromium anodizing is primarily used on aircraft parts and architectural structures that are subject to high stress and corrosive conditions. Although chromium may be used in other operations at metal finishing plants, today's notice only includes those processes that use chromic acid in an electrolytic cell to deposit chromium metal or to form an oxide film on a product.

The chromium electroplating industry is comprised of an estimated 1,540 hard electroplaters, 2,800 decorative electroplaters, and 680 chromic acid anodizers, or approximately 5,000 operations nationwide. These operations vary in size from small shops with only one or two small tanks to large shops with several tanks that are operated almost continuously. Some plating operations are done in stand-alone "job shops," whereas others are done on the premises of larger sources, and are called "captive shops." Although no single electroplating operation emits more than 9.07 Mg/yr (10 tpy) of chromium, electroplaters are estimated to emit 159 Mg/yr (175 tpy) of chromium per year nationwide.

Chromium electroplaters can present an adverse health threat to populations living near the source of emissions. Chromium electroplaters mostly emit the hexavalent form of chromium, Cr(+6), as chromic acid mist, and lesser amounts of trivalent chromium,

Cr(+3). Current health effects data suggest that the hexavalent form of chromium is the most toxic of all chromium compounds. Both human case studies and epidemiological studies attest to the adverse health effects from inhalation of hexavalent chromium. Acute exposure to hexavalent chromium has been shown to cause nasal irritation in workers and other individuals. Intermediate and chronic inhalation exposure to chromium has been reported to cause adverse respiratory tract effects, including irritation and perforation of the nasal mucosa, decreases in lung function, and renal proteinuria. Animal studies of acute organ toxicity also suggest that chromium compounds may produce kidney and liver damage.

The carcinogenic health effects from chromium are also well documented. Hexavalent chromium is considered a Group A carcinogen because there is adequate evidence for its carcinogenicity in humans. Specifically, chronic occupational exposure to chromium has been associated with increased incidence of respiratory cancer in workers. The association of exposure to chromium and the induction of lung cancer is strengthened by the high lung cancer mortality ratios found in various epidemiological studies, the consistency of results across several studies, the increased tumors found in association with increasing doses, and the specificity of the tumor site. The role of trivalent chromium in carcinogenesis is presently unclear.

Reproductive studies on animals also suggest that chromium compounds may have some fetal and maternal toxicity effects. Although conclusive results can not be drawn from the available data, studies suggest that chromium compounds can adversely affect fetal development and male reproduction in experimental animals.

The Agency has developed nationwide emission and population exposure estimates associated with chrome platers and anodizers. Based on this analysis, the Agency estimates that chrome platers and anodizers contribute significantly to the total increased cancer incidence in the U. S. from airborne toxics. Hard chrome platers, decorative chrome platers, and acid anodizers may cause as many as 110 increased cancer cases per year in the U. S. In addition to significant population risks, chrome platers and anodizers contribute significantly to maximum individual cancer risks in the proximity of particular facilities. The Agency estimates that maximum, upper-bound individual risks range from two chances in 100,000 (2×10^{-5}) for small acid anodizing plants to five chances in 1,000 (5×10^{-3}) for large hard plating operations. All estimates of risk in this analysis are based on hexavalent chromium only, and not on trivalent chromium.

An Agency study of Southeast Chicago estimates that chrome platers contribute about one sixth of the total cancer incidence due to all sources of airborne toxics in the study area, including steel mills, road vehicles, and other industrial sources.

An Agency analysis of cancer incidence from air toxic emissions in five large U. S. cities shows that chrome platers contribute about one tenth of the total increased cancer incidence due to all sources of airborne toxics. Extrapolating the cancer rate in the five cities to the U. S. yields an estimate of as high as 90 increased cases per year.

Currently, the only Federal emission regulations for electroplaters are limited to OSHA workplace emission standards,

designed specifically to limit worker exposures. Fourteen States have adopted or proposed regulations for controlling chromium emissions from electroplaters.

The Agency hereby finds that the overall emissions, exposures, and known and suspected health impacts associated with chromium electroplaters and anodizers present a threat of adverse effects to human health. Based on the finding above, the Agency has included chromium electroplaters and anodizers on today's initial list as categories of area sources.

C. Finding of Threat of Adverse Effects for Category of Commercial Perchloroethylene Dry Cleaners

A finding of threat of adverse effects for commercial perchloroethylene dry cleaners is presented in a proposed rule to establish emission standards for perchloroethylene dry cleaners (56 FR 64382).

D. Finding of Threat of Adverse Effects for Category of Cleaners Using Halogenated Solvents

Halogenated solvents are widely used throughout industry to clean the surface of metal parts, electronic components, and other nonporous substrates. The cleaning machines that use halogenated solvents are categorized as one of three types: cold cleaners, open top vapor cleaners (OTVC's), and in-line or conveyorized cleaners. Machines, including maintenance cleaners, that use petroleum distillate type solvents are not included in this category of area sources at this time. The five largest industry users of halogenated solvents for cleaning, by Standard Industries Classification (SIC) Code, are SIC 25 (furniture and fixtures), SIC 34 (fabricated metal products), SIC 36 (electric and electronic equipment), SIC 37 (transportation equipment), and SIC 39 (miscellaneous manufacturing industries). In addition to these industry groups, many non-manufacturing industries (such as railroad, bus, aircraft, and truck maintenance facilities; automotive and electric tool repair shops; automobile dealers; and service stations) also use these solvents for cleaning.

In all of these industries, the most commonly used halogenated solvents are methylene chloride (MC), trichloroethylene (TCE), perchloroethylene (PCE), trichlorotrifluoroethane (CFC-113), and 1,1,1-trichloroethane (TCA). Use of these chemicals is found throughout many industries because they can dissolve many common residues from manufacturing processes, have little or no flammability, and can achieve a high degree of cleanliness on even small parts.

The Agency estimates that there are approximately 100,000 small cold cleaners, 25,000 to 35,000 OTVC's, and 2,500 to 4,000 in-line (cold and vapor) cleaners. Specific emission levels from each type of machine may vary; however, the Agency has estimated that emissions range from 2,500 to 6,000 kg/yr (5,520 to 13,250 lb/yr), depending on the schedule of operation. Most of the solvent losses from halogenated cleaners are to the air.

Due to the high usage and emissions of these cleaners throughout industry, as well as the large number of cleaners, there is a great potential for exposure to the HAP's used as solvents. Two degreasing solvents, CFC-113 and TCA, have also been implicated as causing stratospheric ozone depletion. The TCA has also been shown to be photochemically reactive and contribute to increases in tropospheric ozone levels. Both of these two chemicals, CFC-113 and TCA, will be phased out with other Agency regulations under Title VI of the CAA.

The health effects associated with halogenated solvent cleaners are most well documented for MC, TCE, and PCE. Both MC and TCE are considered probable human carcinogens and are classified in Group B2, while PCE is still under review.

Evidence indicating the carcinogenicity of MC is available through animal studies. Animal inhalation studies on MC have shown significant increases in liver and lung adenomas and carcinomas in both males and females. Other animal studies have indicated that exposure to elevated levels of MC can cause benign mammary tumors. Based upon this available animal evidence, the Agency has determined that MC is a probable human carcinogen. In addition to these adverse effects, short-term exposure to MC has been known to cause impairments in central nervous system (CNS) functioning. Case reports of exposure to MC have shown that humans exposed to MC exhibited narcosis, irritability, analgesia, and fatigue.

Both PCE and TCE are moderately toxic substances that appear to target the CNS, causing dizziness, headaches and slowing of mental activity. Over longer periods of exposure, these adverse effects may also be seen in the liver and kidneys as well as the eyes and upper respiratory tract. The carcinogenic effects from both these chemicals has also been investigated, mostly through animal experiments. Results of TCE tests indicate that inhalation may result in the formation of renal tumors. Other TCE studies suggest that inhalation is fetotoxic and may cause litter resorption and reduced fetal body weight.

An Agency analysis has been conducted of nationwide exposures, individual lifetime risks, and population incidence from halogenated solvent cleaners emissions. This analysis estimates that as many as six increased cancer cases are attributable to halogenated solvent cleaners, annually, in the U. S. This study also suggests that upper-bound maximum individual lifetime risks in the proximity of these cleaners range from as high as one in 1,000,000 (1×10^{-6}) to one in 10,000 (1×10^{-4}). Nationally, the maximum individual risk near a large facility with multiple conveyorized cleaners is as high as five in 10,000 (5×10^{-4}).

Based upon the evidence presented, the Agency finds that cleaners using halogenated solvents present a threat of adverse impact to human health or the environment. The Agency therefore adds them to the of categories of area sources on today's initial list.

E. Finding of Threat of Adverse Effects for Category of Asbestos Processing

The Agency is hereby listing one category of asbestos-related sources: asbestos processing. Asbestos processing includes asbestos milling, manufacturing, and fabrication. Products that are manufactured or fabricated using asbestos include, but are not limited to, textiles, papers and felts, friction materials, cements, vinyl-asbestos floor tiles, gaskets and packings, shotgun shell wads, asphalt concrete, fireproofing and insulating materials, and chlorine.

Information on asbestos emissions has been limited by the lack of an appropriate measuring method. Therefore, engineering estimates of emission have been made from other available information, when appropriate, including process data and worker concentration data. Under the current NESHAP, emissions from asbestos processing are estimated at 1,020 kg/yr (2,240 lb/yr) given full compliance with the current NESHAP. This includes all emissions from milling, manufacturing, and fabricating. Due to the potency of asbestos and the well documented health hazards (described below), the Agency is concerned about these emissions even though exact amounts have not been quantified.

The health effects associated with exposure to asbestos are well documented. Numerous occupational exposure studies, supported by animal studies, clearly indicate that asbestos is a human (Group A) carcinogen. The major impacts associated with asbestos inhalation are lung cancer and mesothelioma. Studies have confirmed that death from lung cancer and mesothelioma is proportional to the cumulative exposure (duration times the intensity). Studies also indicate that asbestos is linked to gastrointestinal cancers, although these occur at a lower rate than that seen for lung cancer.

The Agency has completed an analyses of cancer incidence and maximum individual cancer risks associated with asbestos emissions from the category of asbestos processing. Available Agency estimates of maximum lifetime cancer risks in the vicinity of processing operations are based on early emission estimates that have since been revised to reflect more recent and improved information. However, estimates of maximum risk derived using these earlier estimates of emissions were evaluated and, for asbestos processing, appear to still be applicable. These available data suggest that upper-bound maximum individual lifetime risks are about two in 1,000 (2×10^{-3}) for production in the manufacturing sector.

Regulations to control workplace exposures and/or emissions from asbestos have been established by OSHA, the Mine Safety and Health Administration (MSHA), EPA, and States. The most recent Agency NESHAP, promulgated November 20, 1990, amended the earlier NESHAP to enhance enforcement and promote compliance with the current standards without altering the stringency of existing controls. Since the initial promulgation in 1973, many States have adopted more stringent requirements than the Agency; therefore, no uniform standard now exists. The Agency intends to consult and coordinate with OSHA and other regulatory agencies to establish regulations that are more compatible and consistent than current regulations, as well as easier to understand. This should improve compliance with all regulations.

Based on emission and risk information discussed previously, and the known health effects of asbestos, the Agency has determined

that asbestos processing presents a threat of adverse effects to human health. Emissions data from this category indicate that no sources emit greater than 9.07 Mg/yr (10 tpy) of asbestos. Based on the finding above, the Agency hereby includes the category of asbestos processing on today's list.

In addition to the finding of threat of adverse effects given above, the Agency has additional authority to list and establish standards for the category of asbestos processing under Sections 112(c)(4) and 112(q)(1). Section 112(c)(4) gives the Agency the authority to list any category or subcategory of sources previously regulated under Section 112 as in effect before enactment of the CAA Amendments of 1990. Section 112(q)(1) obligates the Agency to review and, if appropriate, revise each standard previously promulgated under Section 112 before enactment, to comply with the requirements of Section 112(d), within 10 years after the date of enactment of the CAA Amendments of 1990. Since the category of asbestos processing has a promulgated NESHAP, the Agency exercises its discretion to list this category under the authority of Sections 112(c)(4) and 112(q)(1).

V. Descriptions of Listed Categories

Because some of the categories on today's list encompass several industry sectors, operations, and/or types of equipment, the Agency recognizes the importance of describing what is included under each listed category. Hence, descriptions are included in the accompanying docket (Docket No. A-90-49, Item No. IV-A-55) for the purpose of delineating, to the extent currently possible with available data, the potential coverage of each category. The Agency recognizes that these descriptions, like the list itself, may be revised from time to time as better information becomes available. The Agency intends to revise these descriptions as part of the process of establishing standards for each category. Ultimately, a definition of each listed category, or subsequently listed subcategories, will be incorporated in each rule establishing a NESHAP for a category. It is not the Agency's intent that the descriptions, in the docket accompanying today's notice, limit what may be included under each category for the purposes of establishing emission standards either under Section 112(d) or, on a case-by-case basis under Section 112(j), or for purposes relating to other parts of Section 112 involving the definition of source or category of sources.

VI. Relationship of List to Definition of Source for Early Reduction

The identification of categories and subcategories of major sources in today's initial list has no bearing whether any particular facility or grouping is a "source" for purpose of the early reduction program under Section 112(i)(5) or a major source for purposes of Section 112(a)(1). The term "major source" is defined in Section 112(a)(1) in such a way that it refers to the emissions occurring from a contiguous area under common control. By contrast, the Agency must identify "categories and subcategories" of major and area sources generically for the purposes of today's initial

list and for establishing standards under Section 112(d). In most cases, this identification will be made as product or process oriented groupings which will not affect the definition of "source" for purposes of either the early reduction under Section 112(i)(5) or the definition of a "major source" under Section 112(a)(1). The definition of source in the early reduction program is described in Section II.B of the Proposed Regulations Governing Compliance Extensions for Early Reduction of Hazardous Air Pollutants [June 13, 1991, 56 FR 27338].

VII. Administrative Requirements

A. Docket

The docket is an organized and complete file of all the information submitted to or otherwise considered by the Agency in the development of this initial list of categories of sources. The principal purpose of this docket is to allow interested parties to identify and locate documents that serve as a record of the process engaged in by the Agency to publish today's initial list.

B. Executive Order 12291 Review

Executive Order 12291 requires the Agency to determine whether this action is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This action is not major because it imposes no additional regulatory requirements. This notice was submitted to the Office of Management and Budget (OMB) for review. Any written comments from OMB and written EPA responses are available in the docket.

C. Paperwork Reduction Act

This action does not contain any information collection requirements subject to OMB review under the Paperwork Reduction Act, 55 U.S.C. 3501 et seq.

D. Regulatory Flexibility Act Compliance

Pursuant to 5 U.S.C. 605(6), I hereby certify that this action will not have a significant economic impact on a substantial number of small entities because it imposes no new requirements.

Dated: July 2, 1992.

Michael Shapiro,
Assistant Administrator
for Air and Radiation.

[FR Doc. 92-16260 Filed 7-15-92; 8:45 am]

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TABLE 1. INITIAL LIST OF CATEGORIES OF MAJOR AND AREA SOURCES OF HAZARDOUS AIR POLLUTANTS [a]

FUEL COMBUSTION

Category Name

Engine Test Facilities
Industrial Boilers [b]
Institutional/Commercial Boilers [b]
Process Heaters
Stationary Internal Combustion Engines [b]
Stationary Turbines [b]

NON-FERROUS METALS PROCESSING

Category Name

Primary Aluminum Production
Secondary Aluminum Production
Primary Copper Smelting
Primary Lead Smelting
Secondary Lead Smelting
Lead Acid Battery Manufacturing
Primary Magnesium Refining

FERROUS METALS PROCESSING

Category Name

Coke By-Product Plants
Coke Ovens: Charging, Top Side, and Door Leaks
Coke Ovens: Pushing, Quenching, and Battery Stacks
Ferroalloys Production
Integrated Iron and Steel Manufacturing
Non-Stainless Steel Manufacturing - Electric Arc Furnace (EAF) Operation
Stainless Steel Manufacturing - Electric Arc Furnace (EAF) Operation
Iron Foundries
Steel Foundries
Steel Pickling - HCl Process

MINERAL PRODUCTS PROCESSING

Category Name

Alumina Processing
Asphalt/Coal Tar Application - Metal Pipes
Asphalt Concrete Manufacturing
Asphalt Processing
Asphalt Roofing Manufacturing
Chromium Refractories Production
Clay Products Manufacturing
Lime Manufacturing
Mineral Wool Production
Portland Cement Manufacturing
Taconite Iron Ore Processing
Wool Fiberglass Manufacturing

PETROLEUM AND NATURAL GAS PRODUCTION AND REFINING

Category Name

Oil and Natural Gas Production
Petroleum Refineries - Catalytic Cracking (Fluid and other) Units, Catalytic Reforming Units, and Sulfur Plant Units
Petroleum Refineries - Other Sources Not Distinctly Listed

LIQUIDS DISTRIBUTION

Category Name

Gasoline Distribution (Stage 1)
Organic Liquids Distribution (Non-Gasoline)

SURFACE COATING PROCESSES

Category Name

Aerospace Industries
Auto and Light Duty Truck (Surface Coating)
Flat Wood Paneling (Surface Coating)
Large Appliance (Surface Coating)
Magnetic Tapes (Surface Coating)
Manufacture of Paints, Coatings, and Adhesives
Metal Can (Surface Coating)
Metal Coil (Surface Coating)
Metal Furniture (Surface Coating)
Miscellaneous Metal Parts and Products (Surface Coating)
Paper and Other Webs (Surface Coating)
Plastic Parts and Products (Surface Coating)
Printing, Coating, and Dyeing of Fabrics
Printing/Publishing (Surface Coating)
Shipbuilding and Ship Repair (Surface Coating)
Wood Furniture (Surface Coating)

WASTE TREATMENT AND DISPOSAL

Category Name

Hazardous Waste Incineration
Municipal Landfills
Sewage Sludge Incineration
Site Remediation
Solid Waste Treatment, Storage and Disposal Facilities (TSDF)
Publicly Owned Treatment Works (POTW) Emissions

AGRICULTURAL CHEMICALS PRODUCTION

Category Name

2,4-D Salts and Esters Production
4-Chloro-2-Methylphenoxyacetic Acid Production
4,6-Dinitro-o-Cresol Production
Captafol Production
Captan Production
Chloroneb Production
Chlorothalonil Production
Dacthal (tm) Production
Sodium Pentachlorophenate Production
Tordon (tm) Acid Production

FIBERS PRODUCTION PROCESSES

Category Name

Acrylic Fibers/Modacrylic Fibers Production
Rayon Production
Spandex Production

FOOD AND AGRICULTURE PROCESSES

Category Name

Baker's Yeast Manufacturing
Cellulose Food Casing Manufacturing
Vegetable Oil Production

PHARMACEUTICAL PRODUCTION PROCESSES

Category Name

Pharmaceuticals Production

POLYMERS AND RESINS PRODUCTION

Category Name

- Acetal Resins Production
- Acrylonitrile-Butadiene-Styrene Production
- Alkyd Resins Production
- Amino Resins Production
- Boat Manufacturing
- Butadiene-Furfural Cotrimer (R-11)
- Butyl Rubber Production
- Carboxymethylcellulose Production
- Cellophane Production
- Cellulose Ethers Production
- Epichlorohydrin Elastomers Production
- Epoxy Resins Production
- Ethylene-Propylene Elastomers Production
- Flexible Polyurethane Foam Production
- Hypalon (tm) Production
- Maleic Anhydride Copolymers Production
- Methylcellulose Production
- Methyl Methacrylate-Acrylonitrile-Butadiene-Styrene Production
- Methyl Methacrylate-Butadiene-Styrene Terpolymers Production
- Neoprene Production
- Nitrile Butadiene Rubber Production
- Non-Nylon Polyamides Production
- Nylon 6 Production
- Phenolic Resins Production
- Polybutadiene Rubber Production
- Polycarbonates Production
- Polyester Resins Production
- Polyethylene Terephthalate Production
- Polymerized Vinylidene Chloride Production
- Polymethyl Methacrylate Resins Production
- Polystyrene Production
- Polysulfide Rubber Production
- Polyvinyl Acetate Emulsions Production
- Polyvinyl Alcohol Production
- Polyvinyl Butyral Production
- Polyvinyl Chloride and Copolymers Production
- Reinforced Plastic Composites Production
- Styrene-Acrylonitrile Production
- Styrene-Butadiene Rubber and Latex Production

PRODUCTION OF INORGANIC CHEMICALS

Category Name

Ammonium Sulfate Production - Caprolactam By-Product Plants
Antimony Oxides Manufacturing
Chlorine Production
Chromium Chemicals Manufacturing
Cyanuric Chloride Production
Fume Silica Production
Hydrochloric Acid Production
Hydrogen Cyanide Production
Hydrogen Fluoride Production
Phosphate Fertilizers Production
Phosphoric Acid Manufacturing
Quaternary Ammonium Compounds Production
Sodium Cyanide Production
Uranium Hexafluoride Production

PRODUCTION OF ORGANIC CHEMICALS

Category Name

Synthetic Organic Chemical Manufacturing

MISCELLANEOUS PROCESSES

Category Name

Aerosol Can-Filling Facilities
Benzyltrimethylammonium Chloride Production
Butadiene Dimers Production
Carbonyl Sulfide Production
Chelating Agents Production
Chlorinated Paraffins Production
Chromic Acid Anodizing
Commercial Dry Cleaning (Perchloroethylene) - Transfer Machines
Commercial Sterilization Facilities
Decorative Chromium Electroplating
Dodecanedioic Acid Production
Dry Cleaning (Petroleum Solvent)
Ethylidene Norbornene Production
Explosives Production
Halogenated Solvent Cleaners
Hard Chromium Electroplating
Hydrazine Production
Industrial Dry Cleaning (Perchloroethylene) - Transfer Machines
Industrial Dry Cleaning (Perchloroethylene) - Dry-to-Dry Machines
Industrial Process Cooling Towers

MISCELLANEOUS PROCESSES - continued

Category Name

OBPA/1,3-Diisocyanate Production
Paint Stripper Users
Photographic Chemicals Production
Phthalate Plasticizers Production
Plywood/Particle Board Manufacturing
Polyether Polyols Production
Pulp and Paper Production
Rocket Engine Test Firing
Rubber Chemicals Manufacturing
Semiconductor Manufacturing
Symmetrical Tetrachloropyridine Production
Tire Production
Wood Treatment

CATEGORIES OF AREA SOURCES [c]

Asbestos Processing
Chromic Acid Anodizing
Commercial Dry Cleaning (Perchloroethylene) - Transfer Machines
Commercial Dry Cleaning (Perchloroethylene) - Dry-to-Dry Machines
Commercial Sterilization Facilities
Decorative Chromium Electroplating
Halogenated Solvent Cleaners
Hard Chromium Electroplating

[a] All categories in Table 1 are categories of major sources unless specifically identified as categories of area sources. Only major sources within any category shall be subject to emission standards under Section 112 unless a finding is made, for the area sources in the category, of a threat of adverse effects to human health or the environment warranting regulation under Section 112. All listed categories are exclusive of any specific operations or processes included under other categories that are listed separately.

[b] Sources defined as electric utility steam generating units under Section 112(a)(8) shall not be subject to emission standards pending the findings of the study required under Section 112(n)(1) and subsequent listing and regulation thereof.

[c] A finding of threat of adverse effects to human health or the environment warranting regulation under Section 112 has been made for each category of area sources listed in Table 1.