TGG: FGJ: AC:

none

TO: Dave Penney-Austin

FROM: T. G. Grumbles
DATE: November 13, 1991

VISTA

Interoffice Communication

SUBJ: **ATSDR PRIORITY DATA NEEDS**

Attached is the ATSDR federal register announcement on their initial priority data needs analysis for 38 chemicals. Benzene and vinyl, among others, are included. Joe has requested that the VI get involved with vinyl. I haven't heard of any group dealing with benzene but CMA does have a benzene panel.

T. G. Grumbles

dlj

Attachment

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Agency for Toxic Substances and Disease Registry

[ATSDR-42]

Identification of Priority Data Needs for 38 Priority Hazardous Substances

AGENCY: Agency for Toxic Substances and Disease Registry (ATSDR), Public Health Service (PHS), Department of Health and Human Services (HHS).

ACTION: Request for public comments on the identification of priority data needs for 38 priority hazardous substances.

SUMMARY: This notice announces the initiation of the ATSDR Substance-Specific Applied Research Program as mandated by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) by announcing for public comment the priority data needs for 38 hazardous substances. The exposure and toxicity priority data needs contained in this notice have been identified from information gaps via a Decision Guide that was published in the Federal Register at 54 FR 37618, September 11, 1989. The priority data needs represent essential information required by ATSDR and State agencies to perform public health assessments of persons at risk of exposure to substances released from hazardous waste sites. Research to fill these data needs will contribute to determining the types and/or levels of exposure that may present significant risks of adverse health effects in humans exposed to the subject substances.

The priority data needs identified in this notice reflect the opinion of the Agency, in consultation with other federal programs, of the research necessary for fulfilling its statutory mandate under CERCLA and are not intended to represent the priority data needs for any other program.

Consistent with section 104(i)(12) of CERCLA, as amended (42 U.S.C. 9612) nothing in this research program shall be construed to delay or otherwise affect or impair the authority of the President, the Administrator of ATSDR, or the Administrator of EPA to exercise any authority of the President, the Administrator of ATSDR, or the Administrator of EPA under any other provision of law, including TSCA and FIFRA, or the response and abatement authorities of CERCLA.

In initiating this research program, the Agency has worked with other federal programs to determine common substance-specific data needs, and mechanisms to implement research, i.e., via the Toxic Substances Control Act (TSCA), the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), private sector voluntarism, or through the direct use of CERCLA funds. Government funded projects that involve the collection of information from 10 or more respondents will be subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act. Overall, data generated from this research program will lend support to others involved in human risk assessments involving these 38 substances by reducing inherent scientific uncertainties.

The 38 substances, which were selected from ATSDR's List of Priority Hazardous Substances (52 FR 12866, April 17, 1987), are aldrin/dieldrin, arsenic, benzene, beryllium, cadmium, carbon tetrachloride, chloroethane, chloroform, chromium, cyanide, p,p'-DDT,DDE,DDD, di(2-ethylhexyl)phthalate, lead, mercury, methylene chloride, nickel, polychlorinated biphenyl compounds, polycyclic aromatic hydrocarbons (includes 15 substances), selenium, tetrachloroethylene, toluene, trichloroethylene, vinyl chloride, and zinc.

The priority data needs for these 38 substances are presented below. Comments from the public are invited on individual data needs. After consideration of comments received, the final priority data needs for each substance will be published and a research program will be initiated to fill the data needs.

Private sector organizations, that agree with the priority of the data need, may volunteer to conduct research to fill specific priority data needs identified in this notice by indicating their interest during this public comment period. A CERCLA Substance-Specific Applied Research Program Committee comprised of scientists from ATSDR, the National Toxicology Program (NTP), and the Environmental Protection Agency (EPA) will review all voluntary research efforts proposed.

The substance-specific priority data needs were based on and determined from information in corresponding ATSDR Toxicological Profiles. Background technical information and justification for the priority data needs identified in this notice is contained in Priority Data Needs documents and the ATSDR Cross-Substance Priorities document. These documents are available for review by writing to the ATSDR at the address listed in the **ADDRESSES** section of this notice.

DATES: Comments concerning this notice must be received by January 15, 1992.

ADDRESSES: Comments on this notice should bear the docket control number ATSDR-42 and should be submitted to the Division of Toxicology, Agency for Toxic Substances and Disease Registry, Mailstop E-29, 1600 Clifton Road NE., Atlanta, Georgia 30333. Requests for Priority Data Needs documents, or the ATSDR Cross-Substance Priorities document, should be addressed similarly.

Comments on this notice will be available for public inspection at the Agency for Toxic Substances and Disease Registry, Building 33, Executive Park Drive, Atlanta, Georgia (not a mailing address), from 8 a.m. until 4:30 p.m., Monday through Friday, except for legal holidays.

FOR FURTHER INFORMATION CONTACT: The Division of Toxicology, Agency for Toxic Substances and Disease Registry, Mailstop E-29, 1600 Clifton Road NE., Atlanta, Georgia 30333. Telephone: 404-639-6001.

SUPPLEMENTARY INFORMATION:

Background

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. 9604 (i)), as amended by the Superfund Amendments and Reauthorization Act (SARA) (Pub. L. 99-499), requires that ATSDR: (1) Develop jointly with EPA a list of hazardous substances found at National Priorities List (NPL) sites (in order of priority), (2) prepare Toxicological Profiles of these substances, and (3) assure the initiation of a research program to fill identified priority data needs associated with the substances.

This ATSDR Substance-Specific Applied Research Program is directed to supply additional information necessary (i.e., priority data needs) for ATSDR to perform comprehensive public health assessments for populations living in the vicinity of hazardous waste sites. This link between research and public health assessments, and the process for distilling priority data needs for ranked hazardous substances from information gaps found in associated ATSDR Toxicological Profiles, is described in the ATSDR Decision Guide for Identifying Substance-Specific Data Needs Related to Toxicological Profiles (54 FR 37618, September 11, 1989). (The relationship between information gaps and priority data needs is shown in Figure 1.) Briefly, this guide identified categories of exposure and toxicity data needs necessary to assess the four basic steps involved in performing public health assessments.

Exposure Assessment—(1) Environmental Pathways, (2) Human Contact
Hazard Identification—(3) Toxicokinetics, (4) Physiologic/Health Effect

The linkages between the release of a hazardous substance in the environment and impact on human health can only be fully determined when the scientific underpinnings for these four basic steps are available. In the absence of these data, the public health assessment process necessarily involves using certain assumptions. Filling the data needs related to these four steps will lead to reduced uncertainty in such assumptions. The relationships between these four steps and priority data needs are as follows:

Exposure Assessment

Of importance to ATSDR in meeting its statutory mandates is the need to make reasonable scientific assessments based on levels of contaminants found in the environment at or around CERCLA sites. In order to accomplish this goal, a major objective of this research program is to establish linkages between levels of contaminants in the environment and levels in tissue/target organs that are associated with an adverse health effect. ATSDR understands this requires (1) the development and validation of sensitive analytical methods for measuring levels of contaminants in environmental media; (2) information on background levels in the general environment; (3) information on contaminant levels at or near hazardous waste sites; and (4) knowledge of contaminants' environmental fate. Further, extending environmental contaminant levels to human tissues concentrations requires (1) the development and validation of sensitive analytical methods for contaminant detection in human tissues; (2) bioavailability data; (3) information on background levels in non-exposed populations; and (4) information on levels in tissues for populations living at or near hazardous waste sites. Thus, a major priority data need for this data needs research program will be to collect (where appropriate), evaluate, and interpret data for both environmental media and human tissues for environments and populations around hazardous waste sites.

Hazard Identification

Toxicology and pharmacokinetic testing of priority hazardous substances is vital in order to identify target organs and to establish tissue dosimetry. This information is critical in completing the association among levels of these substances in the environment, levels in human tissues, and levels associated with adverse health effects. When information is lacking to identify the most sensitive target organs (and doses associated with these effects) following acute, intermediate and chronic exposures to each substance, it generally will become a priority data need; and the identified health effect studies will be conducted via the most relevant exposure route(s) representative of conditions at hazardous waste sites. Currently, ATSDR does not extrapolate toxicity data across exposure routes or exposure durations. However, ATSDR acknowledges that such extrapolations may be done on a substance-by-substance basis after toxicokinetics information has been established.

Once linkages have been established across exposure routes, between levels in the environment, and levels in specific human tissues associated with health effects, it should be feasible to develop strategies for mitigation of these effects. Mechanistic studies can be undertaken to elucidate the pathophysiology of the health effects; leading ultimately to the development of clinical methods for mitigating any adverse health effects of exposure to persons living around hazardous waste sites.

The final point to be noted in the development of this applied research program is the heavy reliance on the collection of quality human data to validate the substance-specific exposure and toxicity findings evidenced from animal studies and equivocal human studies. This information will be obtained by conducting exposure and health effects studies, and through the establishment of subregistries within the framework of ATSDR's National Exposure Registry.

Implementation of Substance-Specific Research Program

CERCLA, as amended as section 104(i)(5)(D), states that it is the sense of Congress that the costs for conducting this research program be borne by the manufacturers and processors of the hazardous substances under TSCA/FIFRA, or by cost recovery from responsible parties under CERCLA. ATSDR interprets the Congressional intent to mean that portions of this CERCLA Substance-Specific Applied Research Program will be conducted via regulatory mechanisms, private sector voluntarism, and through the direct use of CERCLA funds. Moreover, CERCLA, as amended, requires that ATSDR consider recommendations of the Interagency Testing Committee (ITC) established under section 4(e) of the Toxic Substances Control Act on the types of research to be done. ATSDR is an active participant in this committee; none of the proposed 38 substances are being considered by the ITC at this time.

A. TSCA/FIFRA

In the development and implementation of the research program, ATSDR and EPA have established procedures to identify priority data needs of mutual interest to federal programs. Generally, this begins during, or prior to, the finalization of the priority data needs. These data needs will be filled through a program of toxicological testing under TSCA or FIFRA. This portion of the research will be conducted according to established TSCA/FIFRA procedures and guidelines. This testing will fulfill more than one federal program's need. It is ATSDR's intent to ensure that data needs pursued under TSCA/FIFRA administrative arrangements are subject to independent scientific peer review.

B. Private Sector Voluntarism

The ATSDR encourages private sector voluntary conduct of research on select priority data needs. Private sector organizations, that agree with the priority of the data need, may volunteer to conduct research to fill specific priority data needs identified in this notice by indicating their interest during this public comment period. Concept proposals (1–2 pages), not detailed study designs or protocols are solicited at this time. A review committee comprised of scientists from ATSDR, the National Toxicology Program (NTP), and the Environmental Protection Agency (EPA) will review the voluntary efforts proposed. Based on the review committee's recommendations, ATSDR will determine which, and how, specific voluntary research projects will be pursued with volunteering organizations (Figure 2). It is the intent of ATSDR to only enter into voluntary research projects in ways that lead to high quality scientific work. This would include the necessity of peer review of study protocols and results.

C. CERCLA

Those priority data needs that are not filled by TSCA/FIFRA or initial voluntarism will be considered for funding by ATSDR through its CERCLA budget. A large portion of this research program is envisioned to be unique to CERCLA, e.g., on substances not regulated by other programs or on research needs specific to public health assessments. Mechanisms to fill these

priority data needs may include a second call for voluntarism. Again, scientific peer review of study protocols and results would occur for all research conducted under this auspice.

Substance-Specific Priority Data Needs

The priority data needs identified in Table 1 are considered available for conduct at the discretion of ATSDR and/or EPA via mechanisms that include TSCA/FIFRA, private sector voluntarism or CERCLA. These exposure and toxicity priority data needs are divided into Groups A and B for further refinement. Group A priority data needs are the highest ranked priority data needs while Group B are priority data needs that will be filled pending the results of Group A testing or that are not of the most urgent public health concern to ATSDR at the present time. No hierarchies are set among any one substance's Group A or Group B priority data needs. Reassignments between priority data need groups will be considered by ATSDR on a substance-by-substance basis pending the collection and evaluation of additional data.

Additional information on Group A and B data needs can be obtained in the ATSDR document Cross-Substance Priorities. This document is available for review by writing to ATSDR at the address listed in the **ADDRESSES** section of this notice.

TABLE 1.—SUBSTANCE-SPECIFIC PRIORITY DATA NEEDS

Group A	Group B
Aldrin/Dieldrin:	
Epidemiological studies on the health effects of aldrin and dieldrin (Special emphasis endpoints include: cancer, immunotoxicity, neurotoxicity, and reproductive and developmental toxicity).	Bioavailability from soil.
Dose-response data in animals for intermediate-duration oral exposure.	
Arsenic:	
Comparative toxicokinetic studies to determine if an appropriate animal species can be identified.	Half-lives in surface water, groundwater. Bioavailability from soil.
Benzene:	
Epidemiological studies on the health effects of benzene (Special emphasis endpoints include: immunotoxicity, and reproductive and developmental toxicity).	None.
Dose-response data in animals for acute- and intermediate-duration oral exposure. The subchronic study should include an extended reproductive organ histopathology.	
2-species developmental toxicity study via oral exposure.	
Neurotoxicology battery of tests via oral exposure.	
Beryllium:	
Dose-response data in animals for acute- and intermediate-duration inhalation exposures. The subchronic study should include extended reproductive organ histopathology.	Environmental fate in air. Factors affecting bioavailability in air.
2-species developmental toxicity study via inhalation exposure.	Immunotoxicology battery of tests following oral exposure.
Cadmium:	
Epidemiological studies on the health effects of cadmium (Special emphasis endpoints include: cancer, renal toxicity, hepatotoxicity, immunotoxicity, neurotoxicity, respiratory toxicity, reproductive and developmental toxicity, and dose-response data for less than lifetime exposure).	None.
Carbon Tetrachloride:	
Epidemiological studies on the health effects of CCl_4 (Special emphasis endpoints include: cancer, immunotoxicity, neurotoxicity, and reproductive and developmental toxicity).	Immunotoxicology battery of tests via oral exposure. Half-life in soil.
Dose-response data in animals for chronic oral exposure. The study should include extended reproductive organ and nervous tissue (and demeanor) histopathology.	
Chloroethane:	
Epidemiological studies on the health effects of chloroethane (Special emphasis endpoints include: immunotoxicity, neurotoxicity, and reproductive toxicity).	Dose-response data in animals for chronic inhalation exposures. The study should include an evaluation of nervous system (and behavior) tissues.
Dose-response data in animals for acute- and intermediate-duration oral exposures. The subchronic study should include an evaluation of immune and nervous system (and behavior, demeanor) tissues, and extended reproductive organ histopathology.	
Comparative toxicokinetic studies (across route/species).	
Chloroform:	
Epidemiological studies on the health effects of chloroform (Special emphasis endpoints include: cancer, immunotoxicity, neurotoxicity, and reproductive and developmental toxicity).	None.
Dose-response data in animals for intermediate-duration oral exposure.	
Chromium:	
Dose-response data in animals for acute-duration exposure to chromium (VI) and (III) via oral exposure and for intermediate-duration exposure to chromium (VI) via oral exposure.	Immunotoxicology battery of tests following oral exposure to chromium (III) and (VI). 2-species developmental toxicity study via oral exposure to chromium (III) and (VI).
Multigeneration reproductive toxicity study via oral exposure to chromium (III) and (VI).	
Cyanide:	
Epidemiological studies on the health effects of cyanide (Special emphasis endpoints include: adverse effects on the thyroid gland, and reproductive and developmental toxicity).	Evaluation of the environmental fate of cyanide in soil.

TABLE 1.—SUBSTANCE-SPECIFIC PRIORITY DATA NEEDS—Continued

Group A	Group B
Dose-response data in animals for acute- and intermediate-duration exposures via inhalation. The subchronic study should include extended reproductive organ histopathology and evaluation of neurobehavioral and neuropathological endpoints. 2-Species developmental toxicity study via oral exposure.	
p,p'-DDT, DDD, DDE:	
Epidemiological studies on the health effects of DDT, DDD and DDE (Special emphasis endpoints include: cancer, immunotoxicity, neurotoxicity, and reproductive and developmental toxicity). Dose-response data in animals for chronic-duration oral exposure. Comparative toxicokinetic study (across routes/species).	Bioavailability and bioaccumulation from soil.
Di(2-ethylhexyl)phthalate:	
Epidemiological studies on the health effects of DEHP (Special emphasis endpoints include: cancer and reproductive and developmental toxicity). Dose-response data in animals for acute- and intermediate-duration oral exposures. The subchronic study should include an extended histopathological evaluation of the immunologic and neurologic systems. Multigeneration reproductive toxicity study via oral exposure. Comparative toxicokinetic studies (Studies designed to examine how mammals metabolize and distribute DEHP as compared to rodents via oral exposure).	None.
Lead:	
Epidemiological studies on the health effects of lead (Special emphasis endpoints include: cancer, hematopoietic toxicity, neurotoxicity, immunotoxicity, reproductive and developmental toxicity, and dose-response data). Mechanistic studies on the neurotoxic effects of lead.	None.
Mercury:	
Epidemiological studies on the health effects of mercury (Special emphasis endpoints include: cancer, immunotoxicity, neurotoxicity, and reproductive and developmental toxicity). Multigeneration reproductive toxicity study via oral exposure.	Immunotoxicology battery of tests via oral exposure. Carcinogenicity testing (2 year bioassay) via oral exposure.
Methylene Chloride:	
Dose-response data in animals for acute- and intermediate-duration oral exposure. The subchronic study should include extended reproductive organ histopathology, neuropathology and demeanor, and immunopathology. 2-species developmental toxicity study via the oral route.	None.
Nickel:	
Epidemiological studies on the health effects of nickel (Special emphasis endpoints include: cancer, immunotoxicity, neurotoxicity, and reproductive and developmental toxicity). Dose-response data in animals for acute- and intermediate-duration oral exposures.	Neurotoxicology battery of tests via oral exposure. Bioavailability of nickel from soil.
Polychlorinated Biphenyl Compounds:	
Epidemiological studies on the health effects of PCBs (Special emphasis endpoints include: cancer, immunotoxicity, gastrointestinal toxicity, thyroid toxicity, hematopoietic toxicity, and reproductive and developmental toxicity). Dose-response data in animals for acute- and intermediate-duration oral exposures.	Photodegradation of PCBs in air and water. Bioavailability of PCBs in air, water and soil. Dose-response data in animals for acute- and intermediate-duration inhalation exposures. The subchronic study should include extended reproductive organ histopathology.
Polycyclic Aromatic Hydrocarbons (includes 15 substances):	
Epidemiological studies on the health effects of PAHs (Special emphasis endpoints include: cancer, immunotoxicity, reproductive and developmental toxicity, and adverse skin effects). Dose-response data in animals for intermediate duration oral exposures. The subchronic study should include extended reproductive organ histopathology and immunopathology. 2-Species developmental toxicity study via inhalation or oral exposure.	Dose-response data in animals for acute- and intermediate-duration inhalation exposures. The subchronic study should include extended reproductive organ histopathology and immunopathology. Mechanistic studies on nonalternant PAHs, on how mixtures of PAHs can influence the ultimate activation of PAHs, and on how PAHs affect rapidly proliferating tissues.
Selenium:	
Epidemiological studies on the health effects of selenium (Special emphasis endpoints include: cancer, immunotoxicity, reproductive and developmental toxicity, hepatotoxicity and adverse skin effects). Dose-response data in animals for acute-duration oral exposure.	Immunotoxicology battery of tests via oral exposure.
Tetrachloroethylene:	
Epidemiological studies on the health effects of tetrachloroethylene (Special emphasis endpoints include: cancer, immunotoxicity, reproductive and developmental toxicity, hepatotoxicity and neurotoxicity). Dose-response data in animals for acute-duration oral exposure, including neuropathology and demeanor, and immunopathology. Multigeneration reproductive toxicity study via oral exposure.	Dose-response data in animals for chronic-duration oral exposure, including neuropathology and demeanor, and immunopathology. 2-Species developmental toxicity study via oral exposure.
Toluene:	
Dose-response data in animals for acute- and intermediate-duration oral exposures. The subchronic study should include an extended histopathological evaluation of the immune system. Comparative toxicokinetic studies (Characterization of absorption, distribution, and excretion via oral exposure). Neurotoxicology battery of tests via oral exposure.	Mechanism of toluene-induced neurotoxicity.

TABLE 1.—SUBSTANCE-SPECIFIC PRIORITY DATA NEEDS—Continued

Group A	Group B
Trichloroethylene:	
Epidemiological studies on the health effects of trichloroethylene (Special emphasis endpoints include: cancer, developmental toxicity, and neurotoxicity).	Neurotoxicology battery of tests via the oral route. Immunotoxicology battery of tests via the oral route.
Dose-response data in animals for acute-duration oral exposure.	
Vinyl Chloride:	
Epidemiological studies on the health effects of vinyl chloride (Special emphasis endpoints include: cancer, immunotoxicity, reproductive and developmental toxicity, hepatotoxicity, and neurotoxicity).	Dose-response data in animals for chronic-duration inhalation exposure. Mitigation of vinyl chloride-induced toxicity. 2-species developmental toxicity study via inhalation.
Dose-response data in animals for acute-duration inhalation exposure.	
Multigeneration reproductive toxicity study via inhalation.	
Zinc:	
Dose-response data in animals for acute- and intermediate-duration oral exposures. The subchronic study should include an extended histopathological evaluation of the immunologic and neurological systems.	None.
Multigeneration reproductive toxicity study via oral exposure.	
Carcinogenicity testing (2-year bioassay) via oral exposure.	

As previously stated ATSDR considers that a portion of this research will be most appropriately conducted utilizing CERCLA data and resources. Toward this end, ATSDR has identified particular data needs that will be considered for implementation by ATSDR programs. These priority data needs fall into both the exposure and toxicity data needs categories.

A major exposure priority data need for this applied research program will be to collect, evaluate, and interpret data from contaminated media around hazardous waste sites; and this has been identified by ATSDR as a priority data need for all 38 substances. However, ATSDR realizes that a large amount of information has already been collected through individual state programs and the EPA's CERCLA activities. ATSDR will therefore evaluate the extant information from these programs in order to help fill data needs on substance-specific exposures.

ATSDR's role as a public health agency addressing environmental health is, where appropriate, to collect human data to validate substance-specific exposure and toxicity findings. This information will be obtained by ATSDR through the conduct of exposure and health effects studies, and through the establishment and use of substance-specific subregistries of persons potentially exposed to these substances within the Agency's National Exposure Registry. When a subregistry, or a human exposure study is identified as a priority data need, the responsible ATSDR program will consider this recommendation and determine its feasibility, dependent on identifying appropriate populations and funding (Table 2). These priority data needs may be reclassified following considerations of feasibility, and any reclassification will be published in the Federal Register.

ATSDR acknowledges that the conduct of human studies to determine possible linkages between exposure to hazardous substances and human health effects may be accomplished other than by Agency programs or under other ATSDR-sponsored auspices. Toward that end, the private sector and other governmental programs are encouraged to use ATSDR's priority data needs to plan their research activities, i.e., to identify appropriate populations and conduct studies answering the specific human health questions.

TABLE 2.—SUBSTANCE-SPECIFIC PRIORITY DATA NEEDS FOR CONSIDERATION BY ATSDR PROGRAMS

Substance	Priority Human Data Needs
Aldrin/Dieldrin	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to aldrin and dieldrin.
	Candidate for subregistry of exposed persons.
Arsenic	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to arsenic.
Benzene	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to benzene.
Beryllium	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to beryllium.
Cadmium	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to cadmium.
	Evaluation of existing registries of exposed persons.
Carbon Tetrachloride	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to CCl_4.
	Candidate for subregistry of exposed persons.
Chloroethane	Candidate for subregistry of exposed persons.
Chloroform	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to chloroform.
	Candidate for subregistry of exposed persons.
Chromium	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to chromium.
	Candidate for subregistry of exposed persons.
Cyanide	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to cyanide.
	Candidate for subregistry of exposed persons.
p,p'-DDT, DDD, DDE	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to DDT, DDD, and DDE.
	Candidate for subregistry of exposed persons.

TABLE 2.—SUBSTANCE-SPECIFIC PRIORITY DATA NEEDS FOR CONSIDERATION BY ATSDR PROGRAMS—Continued

Substance	Priority Human Data Needs
Di(2-ethylhexyl)phthalate	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to DEHP. Candidate for subregistry of exposed persons.
Lead	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to lead. Candidate for subregistry of exposed persons.
Mercury	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to mercury. Candidate for subregistry of exposed persons.
Methylene Chloride	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to methylene chloride. Candidate for subregistry of exposed persons.
Nickel	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to nickel. Candidate for subregistry of exposed persons.
Polychlorinated Biphenyl Compounds	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to PCBs. Candidate for subregistry of exposed persons.
Polycyclic Aromatic Hydrocarbons (includes 15 substances).	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to PAHs. Candidate for subregistry of exposed persons.
Selenium	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to selenium. Candidate for subregistry of exposed persons.
Tetrachloroethylene	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to tetrachloroethylene. Candidate for subregistry of exposed persons.
Toluene	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to toluene. Candidate for subregistry of exposed persons.
Trichloroethylene	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to trichloroethylene. Candidate for subregistry of exposed persons.
Vinyl Chloride	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to vinyl chloride. Candidate for subregistry of exposed persons.
Zinc	Exposure levels in humans living near hazardous waste sites and other populations, such as workers exposed to zinc. Candidate for subregistry of exposed persons.

Dated: October 9, 1991.

Walter R. Dowdle,

Acting Administrator, Agency for Toxic Substances and Disease Registry.

BILLING CODE 4160-70-M

Figure 1. Distillation of ATSDR's Priority Data Needs

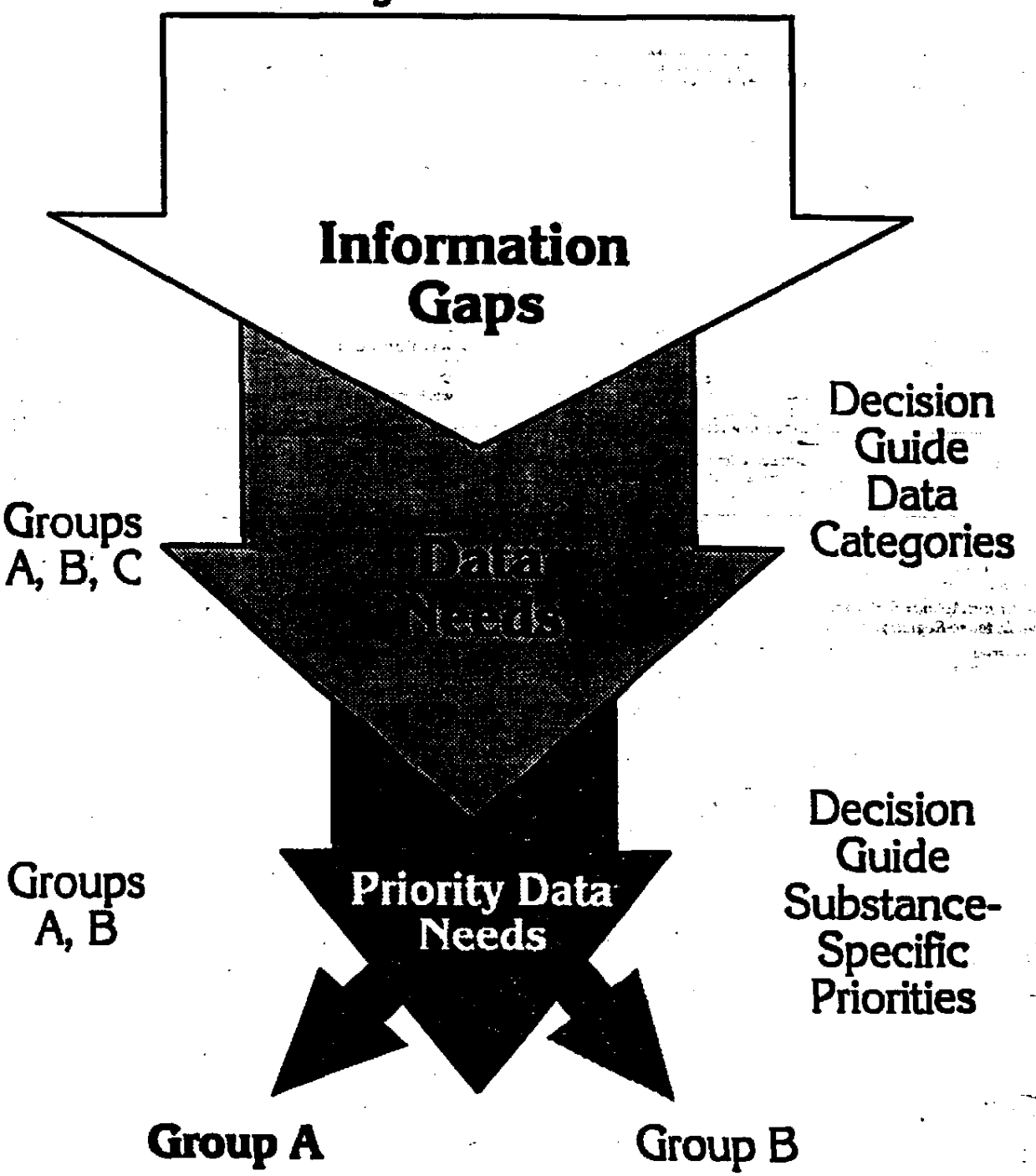
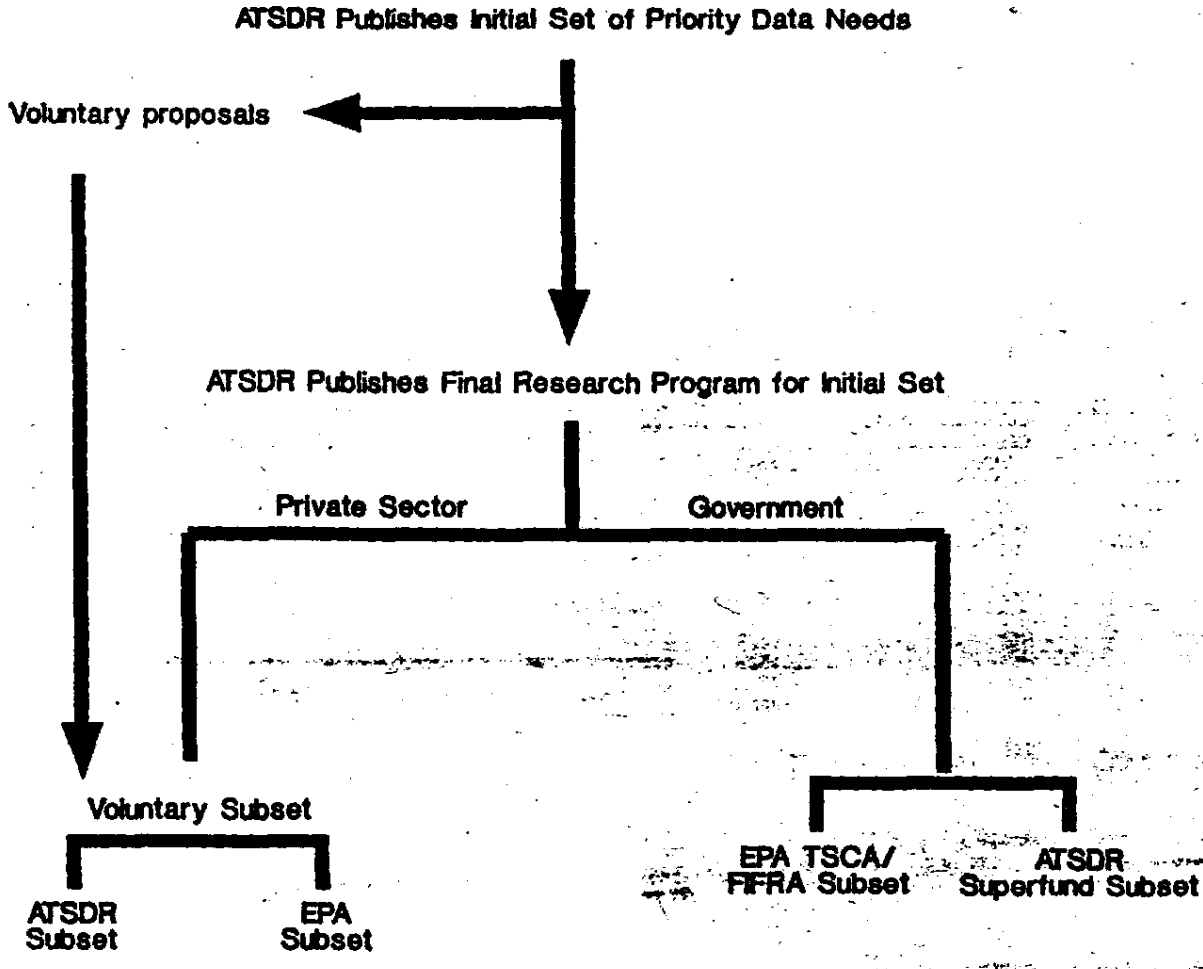


Figure 2.
ATSDR's Initiation of its Superfund Applied Research Program to Fill Priority Data Needs



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