NATIONAL AIR TOXICS INFORMATION CLEARINGHOUSE

EPA Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

STAPPA / ALAPCO State and Territorial Air Pollution Program Administrators
Association of Local Air Pollution Control Officials

Ongoing Research and Regulatory Development Projects

July 1991

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NATIONAL AIR TOXICS INFORMATION CLEARINGHOUSE: ONGOING RESEARCH AND REGULATORY DEVELOPMENT PROJECTS

FINAL REPORT

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PREFACE

In response to State and local agency requests for air toxics information, the U. S. Environmental Protection Agency has developed the National Air Toxics Information Clearinghouse. This information dissemination center has been developed in cooperation with the State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officials (ALAPCO).

The purpose of this document, published by the National Air Toxics Information Clearinghouse, is to inform State and local agencies and other Clearinghouse users of current research and regulatory development projects under way at the U. S. Environmental Protection Agency (EPA), the National Institute for Occupational Safety and Health (NIOSH), the Agency for Toxic Substances and Disease Registry (ATSDR), and State and local agencies, and to help them identify sources of specific air toxics information. Every effort has been made to ensure accuracy as of March 31, 1991, the date that compilation of project information was collected. However, future changes in agency priorities and funding levels may change the scope and estimated project completion dates.

This document is the 1991 update of the annual National Air Toxics Information Clearinghouse ongoing research document, last published in July 1990. The Clearinghouse plans to continue to update this document on a regular basis. Other publications of the Clearinghouse include:

- National Air Toxics Information Clearinghouse: Rationale for Air Toxics Control in Seven State and Local Agencies, EPA-450/5-86-005, PB86-181179/XAB, August 1985;
- National Air Toxics Information Clearinghouse: How The Clearinghouse Can Help to Answer Your Air Toxics Questions, EPA-450/5-86-009, PB88-157813/XAB, July 1986;
- National Air Toxics Information Clearinghouse: Methods for Pollutant Selection and Prioritization, EPA-450/5-86-010, PB87-124079/XAB, July 1986;
- National Air Toxics Information Clearinghouse: Qualitative and Quantitative Cancer Risk Assessment, EPA-450/5-87-003, PB88-113188/XAB, June 1987:
- National Air Toxics Information Clearinghouse: Bibliography of Selected Reports and Federal Register Notices Related to Air Toxics, six volumes: EPA-450/5-87-005, PB88-136601/XAB (Volume 1: Citations - 1987), July 1987; EPA-450/5-88-005,

PB89-103436/XAB (Volume 2: Citations - 1988), July 1988; EPA-450/3-89-25, PB90-270570/REB (Volume 3: Citations - 1989), July 1989; EPA-450/3-90-014, PB91-168435/XAB (Volume 4: Citations - 1990), July 1990; EPA-450/3-91-016, NTIS number not yet available (Volume 5: Citations - 1991), July 1991; and EPA-450/3-91-017, NTIS number not yet available, (Index - 1991), July 1991;

- National Air Toxics Information Clearinghouse: NATICH Data Base Users Guide for Data Entry and Editing, EPA-450/5-88-001, PB88-202734/XAB, February 1988;
- National Air Toxics Information Clearinghouse: NATICH Data Base Users Guide for Data Viewing, EPA-450/5-88-002, PB88-197470/XAB, February 1988;
- National Air Toxics Information Clearinghouse: Case Studies in Risk Communication, EPA-450/5-88-003, PB89-104277/XAB, May 1988;
- National Air Toxics Information Clearinghouse Report on State, Local, and EPA Air Toxics Activities, EPA-450/3-91-018, NTIS number not yet available, July 1991;
- National Air Toxics Information Clearinghouse Newsletter, a bimonthly periodical, 39 issues to date, December 1983 - May 1991; and
- National Air Toxics Information Clearinghouse: Ongoing Research and Regulatory Development Projects, EPA-450/3-91-015, NTIS number not yet available, July 1991.

ABSTRACT

The National Air Toxics Information Clearinghouse has been established by the U. S. Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards for the purpose of facilitating information transfer among Federal, State, and local air quality management agencies. This document has been published as part of that effort. Its purpose is to inform State and local agencies and other Clearinghouse users of U. S. EPA, National Institute for Occupational Safety and Health (NIOSH), Agency for Toxic Substances and Disease Registry (ATSDR), and State and local agency research and regulatory development projects concerning toxic air pollutants.

The document is divided into three sections and an appendix. The first section is an introduction that explains document scope and use. Section 2 lists 269 air toxics projects in progress as of March 31, 1991, at EPA, NIOSH, ATSDR, and State and local agencies. A brief description of each project, the sponsoring agency, and a contact name, office, and telephone number are given. The third section of the document contains the index that allows readers to locate projects of interest. Projects are indexed by agency, project type, chemical name or class and Chemical Abstract Service (CAS) number, and Standard Industrial Classification (SIC) Code. The appendix lists regulatory development projects on toxic chemicals under way at the EPA's Office of Drinking Water (ODW). Although most of these projects are not directly related to air problems, health information on toxic chemicals from ODW projects may be of interest to Clearinghouse users.

This work complements information contained in the Clearinghouse documents entitled "National Air Toxics Information Clearinghouse: Bibliography of Selected Reports and Federal Register Notices Related to Air Toxics, Volume 1: Citations - 1987, July 1987 (EPA-450/5-87-005); Volume 2: Citations - 1988, July 1988 (EPA-450/5-88-005); Volume 3: Citations - 1989, July 1989 (EPA-450/3-89-25); Volume 4: Citations - 1990, July 1990 (EPA-450/3-90-014); Volume 5: Citations - 1991, July 1991 (EPA-450/3-91-016); and Index - 1991, July 1991 (EPA-450/3-91-017).

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1.0 INTRODUCTION

This list of ongoing research and regulatory development activities has been compiled by the National Air Toxics Information Clearinghouse (NATICH), which is operated by the Pollutant Assessment Branch of the U. S. EPA's Office of Air Quality Planning and Standards (OAQPS). It is one of several tools designed to facilitate exchange of information for toxic air pollutants. A total of 269 ongoing projects are listed. These projects have been funded by the U. S. EPA, National Institute for Occupational Safety and Health (NIOSH), Agency for Toxic Substances and Disease Registry (ATSDR), or State and local agencies. The sponsoring agency, a contact name and telephone number, and a description of the work are provided for each project. To facilitate use of this document, the projects are indexed by sponsoring agency, project type, chemical name or class and Chemical Abstract Service (CAS) registry number, and Standard Industrial Classification (SIC) Code and SIC Code title.

This document is designed to help Clearinghouse users identify sources of information for specific air toxics questions or problems. It is an updated version of the July 1990 Clearinghouse "Ongoing Research and Regulatory Development Projects" document (EPA-450/3-90-013, PB91-161752/XAB). The projects listed in this document focus on studies that have not yet resulted in publicly available reports. The list indicates estimated completion dates as well as a contact person who can provide study details. In future updates of this document, new projects will be added, and the dates and names previously provided will be updated as required. Projects that were completed since the last edition have been removed. Some of these projects resulted in published reports that are listed in the July 1991 Clearinghouse publication "Bibliography of Selected Reports and Federal Register Notices Related to Air Toxics, Volume 5: Citations - 1991." Clearinghouse users should keep previous reports for a complete list of research activities that have been conducted by the various agencies.

DOCUMENT SCOPE

Twenty types of projects that are considered to be of greatest interest to agencies concerned with the regulation of toxic air pollutants are included in this compilation. Both basic scientific research projects and studies conducted to assess the need for regulations and/or to support regulatory development activities have been included. Federal regulations may or may not be developed for sources and/or pollutants covered by these projects. The 20 categories of projects are briefly defined below.

1. Accident Prevention/Emergency Response - These projects range in scope from establishing accident prevention and emergency response measures to evaluating releases or spills and preparing appropriate responses to the accident. This includes procedures under development to meet the Superfund Amendments and Reauthorization Act (SARA) Title III community-right-to-know program requirements.

2. Ambient Monitoring - Projects that develop methodologies for monitoring hazardous air pollutants or to conduct monitoring studies.

3. CHIPs - Chemical Hazard Information Profiles - These profiles are prepared by EPA's Office of Toxic Substances that compiles preliminary information about sources, environmental distribution, exposure, and health effects of specific chemicals.

4. Clean Air Act Title III Guidance/Documents - Projects that pertain to implementing Title III of the Clean Air Act Amendments of 1990, which relate to air toxics.

5. Control Technology - Projects that address control of air toxics from specific sources or methods to mitigate effects from toxic pollutants in a geographic area (i.e., effects of urban soup).

6. Dispersion Modeling - Projects in which dispersion modeling of an air pollution source or sources emitting toxic air pollutants is performed. Also included are projects that develop models to evaluate the dispersion characteristics of air toxics attributed to geographical and meteorological influences.

7. Emission Factors - Projects that develop emission factors for specific air toxics or compile emission factors from previously published data.

8. Epidemiology Studies - Epidemiology studies primarily funded by NIOSH examining human health effects possibly resulting from exposure to toxic air pollutants.

9. Exposure Assessments - Projects that estimate the population exposed to ambient concentrations of specific air toxics.

10. Health Assessments - Projects that result in the compilation of information on health effects of specific air toxics chemicals.

11. Indoor Air - Projects that study indoor air pollutant, including methods development for monitoring and health and exposure assessments.

12. NESHAP - EPA projects that support the development of National Emission Standards for Hazardous Air Pollutants (NESHAP) under Section 112 of the Clean Air Act. These projects may include collecting or generating the following types of information: an analysis of the affected industry or air pollution source including emissions data and applicable control technology; an analysis of regulatory alternatives in terms of potential environmental, economic, and energy impacts; and health information including exposure and risk assessments.

13. NSPS - EPA projects that support the development of New Source Performance Standards (NSPS) for sources of certain hazardous air pollutants under Section 111 of the Clean Air Act. These projects may involve gathering or generating the following types of information: an analysis of the affected industry or air pollution source including emissions data and applicable control technology, and an analysis of regulatory alternatives in terms of potential environmental, economic, and energy impacts.

14. Pollution Prevention - Projects that support the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes.

15. Pre-Regulatory Assessments - Projects that assess whether specific air pollutants should be regulated under the Clean Air Act or other appropriate mechanisms. These projects include reviewing the health effects, sources, air emissions, and potential for public exposure to the specific pollutants.

16. Regulatory Development Guidance - EPA-funded projects that provide guidance to State and local agencies on development of air toxics control programs.

17. Risk Assessments - Projects that estimate potential human risks resulting from exposure to hazardous air pollutants.

18. Source Assessments - Projects that identify and quantify emissions from specific source categories and that evaluate applicable control technologies.

19. Source Sampling - Projects that develop source sampling methodologies or that include sampling specific sources of hazardous air pollutants.

20. Toxicity Testing - Animal toxicity testing studies that assess adverse health effects associated with exposure to one or more chemicals.

The following EPA offices were contacted for lists of projects within these 20 categories:

- Office of Air and Radiation;
- Office of Pesticides and Toxic Substances;
- Office of Research and Development;
- Office of Solid Waste and Emergency Response; and
- Regional Offices for all 10 EPA Regions.

The NIOSH and ATSDR under the Department of Health and Human Services were also contacted. In selecting projects from these lists, emphasis was placed on projects dealing with toxic air pollutants that belong to the categories listed above. State and local agencies enter their project lists directly into the Clearinghouse data base as a part of the Clearinghouse's annual information request.

The EPA's Office of Drinking Water (ODW) projects have been listed in the Appendix. Although not specifically air-related projects, health information on toxic pollutants resulting from ODW projects may be helpful to Clearinghouse users.

USING THIS DOCUMENT

The remainder of this document has been divided into two sections and an appendix. Section 2 contains individual entries for 269 ongoing research and regulatory development projects. The EPA, NIOSH, and ATSDR projects appear first, followed by State and local agency projects. Project entries are numbered sequentially throughout Section 2, beginning with the prefix CL-BIB or with the two-letter postal code State abbreviation for State or local agency projects. Breaks in numerical sequence indicate the removal of previous entries after completion of the specific project. Each entry generally contains the following elements:

- Project Title,
- Status of Project,
- Contact Office, Name, and Telephone Number,

- Chemical Abstract Service (CAS) Registry Number,
- Chemical Name,
- Air Pollution Source,
- Project Type,
- Project Description, and
- Standard Industrial Classification (SIC) Code.

The status field contains the start date and anticipated completion date, if known. Any proposed publication information, if appropriate, is also included. In the case of emission standards projects (NESHAP and NSPS), the entry indicates whether the standard is currently in the proposal or promulgation stage. Since most NIOSH projects are long-term projects, journal articles on various phases of a project may be published before the overall project completion date shown in the entry.

The next element in each project entry lists the office doing the work and the name and telephone number of the Project Officer or other knowledgeable contact. Abbreviations used for the offices and the telephone number for each office are included in Table 1.

The CAS number, chemical name, and source fields may not be applicable to all entries. For example, projects that deal with groups of chemicals such as "organic compounds" or "heavy metals" rather than specific pollutants cannot be assigned CAS numbers. Several special Clearinghouse acronyms prefaced with "CL-" have been assigned to groups of common pollutant types where no CAS number was applicable. The list of Clearinghouse chemical identifier acronyms is shown in Table 2. In some projects dealing with specific source types, lists of chemicals emitted are not yet available, so "various" has been used under chemical name. Other chemical-specific projects may not deal with specific air pollution sources. In these cases, the air pollution source field of the entry has been omitted. Wherever possible, an effort has been made to list the specific chemical name(s), CAS registry number(s), and/or source type(s) for each project. Figure 1 gives an example of a typical entry.

If a project clearly falls into 1 of the 20 categories listed above, only that one project type is listed in the entry. However, there is often overlap between the kinds of information included in these categories, therefore, more than one project type is selected based on the project title and description. The final element of the project entry provides a brief general description of the project.

Section 3 of the document is the index that is organized both alphabetically and numerically. Each project is indexed by project type, CAS number, chemical name, SIC Code and the corresponding SIC Code title, and the

agency conducting the work. These indices allow users to locate projects pertaining to a specific chemical, source, or type of information. For example, if information is desired on a specific chemical, it can be obtained by looking up the chemical name in the index or by looking up the CAS number for that chemical. Under the chemical name are a list of titles and project numbers (e.g., CL-BIB-0195 or CA01-A5-174-33). Using this project number, one can look up the projects of interest in Section 2 of this document. Similarly, this process can be followed for various source types for which there are SIC Codes. For example, if information on projects related to steel or the chemical industry was desired, a listing could be found alphabetically and numerically in the index under each of these categories and their respective SIC Codes. If an entry contains more than one project type, it is listed in the index under each applicable project type. Only those chemical names, CAS numbers, and sources with SIC Codes used in the 20 project descriptions are found in the index. A table of contents to the index begins Section 3. This lists all terms found in the index and the index page number where the term and associated projects are listed.

Regulatory development projects under way at the EPA Office of Drinking Water (ODW) are summarized in the appendix. Although these are not specifically air-related projects, Clearinghouse users may find toxic chemical information generated by ODW useful. For example, background documents for setting Maximum Contaminant Levels under the Safe Drinking Water Act contain health information on toxic chemicals and many chemicals being studied by ODW are also potential air pollutants. The Appendix contains a brief description of ODW regulatory development activities and lists of chemicals currently under study.

Information in this report is also available through the National Air Toxics Information Clearinghouse computerized data base known as NATICH. By accessing the data base on-line, the user may identify ongoing project citations by a combination of factors such as pollutant name or CAS number, SIC Code, project type, and/or sponsoring agency (EPA, NIOSH, ATSDR, or State/local agency). For more information on accessing NATICH, contact the Clearinghouse staff at (919) 541-0850 or (FTS) 629-0850.

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT

Acronym				
Office	Division	Branch	Name	Telephone
1. Environmental Protection Agency (EPA) Offices				
a. Office of Air and Radiation (OAR)				(202) 382-7400 (FTS) 382-7400
OAQPS/			Office of Air Quality, Planning and Standards	(919) 541-5615 (FTS) 629-5615
		CTC	Control Technology Center	(919) 541-0800 (FTS) 629-0800
	ESD/		Emission Standards Division	(919) 541-5572 (FTS) 629-5572
		SDB	Standards Development Branch	(919) 541-5579 (FTS) 629-5579
		PAB	Pollutant Assessment Branch	(919) 541-5647 (FTS) 629-5647
		ISB	Industrial Studies Branch	(919) 541-5596 (FTS) 629-5596
		CPB	Chemicals and Petroleum Branch	(919) 541-5674 (FTS) 629-5674
	TSD/		Technical Support Division	(919) 541-5536 (FTS) 629-5536
		MRB	Monitoring and Reports Branch	(919) 541-5559 (FTS) 629-5559
		SRAB	Source Receptor Analysis Branch	(919) 541-5561 (FTS) 629-5561
		NADB	National Air Data Branch	(919) 541-5583 (FTS) 629-5583
		EIB	Emissions Inventory Branch	(919) 541-2612 (FTS) 629-2612
		EMB	Emissions Measurement Branch	(919) 541-5544 (FTS) 629-5544
	AQMD/		Air Quality Management Division	(919) 541-5621 (FTS) 629-5621
		PPB	Permit Programs Branch	(919) 541-5345 (FTS) 629-5345
		ASB	Ambient Standards Branch	(919) 541-5656 (FTS) 629-5656

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT (Continued)

Acronym				
Office	Division	Branch	Name	Telephone
	SSCD/		Stationary Source Compliance Division	(703) 308-8713 (FTS) 398-8713
		TSB	Technical Support Branch	(703) 308-8666 (FTS) 398-8666
ORP/			Office of Radiation Programs	(202) 475-9600 (FTS) 475-9600
	CSD/		Criteria and Standards Division	(703) 308-8777 (FTS) 398-8777
		ESB	Environmental Standards Branch	(703) 308-8760 (FTS) 398-8760
	RD		Radon Division	(202) 475-9622 (FTS) 475-9622
OMS/			Office of Mobile Sources	(202) 382-7645 (FTS) 382-7645
OAIAP/			Office of Atmospheric and Indoor Air Programs	(202) 382-7407 (FTS) 382-7407
	GCD/		Global Change Division	(202) 382-7750 (FTS) 382-7750
		ARB	Analysis and Regulatory Branch	(202) 382-2787 (FTS) 382-2787
	IAD/		Indoor Air Division	(703) 308-8470 (FTS) 398-8470
b. Office of Research and Development (ORD)				(202) 382-7676 (FTS) 382-7676
OHEA/			Office of Health and Environmental Assessment	(202) 382-7317 (FTS) 382-7317
	EAG		Exposure Assessment Group	(202) 475-8909 (FTS) 475-8909
	HHAG/		Human Health Assessment Group	(202) 382-5898 (FTS) 382-5898
		RDTB	Reproductive and Developmental Toxicology Branch	(202) 382-7495 (FTS) 382-7495
	ECAO-RTP		Environmental Criteria and Assessment Office, Research Triangle Park, NC	(919) 541-4173 (FTS) 629-4173

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT (Continued)

Acronym				
Office	Division	Branch	Name	Telephone
	ECAO-CIN		Environmental Criteria and Assessment Office, Cincinnati, OH	(513) 569-7531 (FTS) 684-7531
OHR/			Office of Health Research	(202) 382-5900 (FTS) 382-5900
	HERL		Health Effects Research Laboratory	(919) 541-2370 (FTS) 629-2370
OEETD/			Office of Environmental Engineering and Technology Demonstration	(202) 382-2600 (FTS) 382-2600
	AEERL/		Air and Energy Engineering Research Laboratory	(919) 541-2822 (FTS) 629-2822
	CIAD/		Combustion and Indoor Air Division	(919) 541-2918 (FTS) 629-2918
		CRB	Combustion Research Branch	(919) 541-2477 (FTS) 629-2477
		IAB	Indoor Air Branch	(919) 541-2746 (FTS) 629-2746
	ATRD/		Air Toxics Research Division	(919) 541-3443 (FTS) 629-3443
		ATCB	Air Toxics Control Branch	(919) 541-2818 (FTS) 629-2818
		IPB	Industrial Processes Branch	(919) 541-2852 (FTS) 629-2852
	RREL		Risk Reduction Engineering Laboratory	(513) 569-7418 (FTS) 684-7418
OMMSQA/			Office of Modeling, Monitoring Systems, and Quality Assurance	(202) 382-5767 (FTS) 382-5767
	AREAL/		Atmospheric Research and Exposure Assessment Laboratory	(919) 541-2106 (FTS) 629-2106
	EARD		Exposure Assessment Research Division	(919) 541-2346 (FTS) 629-2346
	MRDD/		Methods Research and Development Division	(919) 541-2454 (FTS) 629-2454

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT (Continued)

Acronym				
Office	Division	Branch	Name	Telephone
		MRB	Methods Research Branch	(919) 541-3065 (FTS) 629-3065
	CPCD		Chemical Processes and Characterization Division	(919) 541-2857 (FTS) 629-2857
	ASMD		Atmospheric Sciences Modeling Division	(919) 541-4564 (FTS) 629-4564
c. Office of Pesticides and Toxic Substances (OPTS)				(202) 382-2902 (FTS) 382-2902
OTS/			Office of Toxic Substances	(202) 382-3810 (FTS) 382-3810
	ECAD/		Existing Chemical Assessment Division	(202) 382-3442 (FTS) 382-3442
		CSB	Chemical Screening Branch	(202) 382-3436 (FTS) 382-3436
		RAB	Risk Analysis Branch	(202) 382-3832 (FTS) 382-2832
		CTB	Chemical Testing Branch	(202) 475-8130 (202) 475-8130
	HERD/		Health and Environmental Review Division	(202) 382-4241 (FTS) 382-4241
		CREB	Chemical Review and Evaluation Board	(202) 382-3446 (FTS) 382-3446
OPP/			Office of Pesticide Programs	(703) 557-7090 (FTS) 557-7090
	RD/		Registration Division	(703) 557-5447 (FTS) 557-5447
		RSB	Registration Support Branch	(703) 557-7700 (FTS) 557-7700
	HED/		Health Effects Division	(703) 557-7351 (FTS) 557-7351
		OREB	Occupational and Residential Exposure Branch	(703) 557-3536 (FTS) 557-3536

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT (Continued)

Acronym			Name	Telephone
Office	Division	Branch		
d. Office of Solid Waste and Emergency Response (OSWER)				(202) 382-4610 (FTS) 382-4610
OSW/			Office of Solid Waste	(202) 382-4627 (FTS) 382-4627
	CAD/		Characterization and Assessment Division	(202) 382-4637 (FTS) 382-4637
		TAB	Technical Assessment Branch	(202) 382-4761 (FTS) 382-4761
	WMD/		Waste Management Division	(703) 308-8414 (FTS) 398-8414
OERR/			Office of Emergency and Remedial Response	(202) 382-2180 (FTS) 382-2180
	ERD/		Emergency Response Division	(202) 475-8720 (FTS) 475-8720
CEPPO/			Chemical Emergency Preparedness and Prevention Office	(202) 475-8600 (FTS) 475-8600
e. Office of Water (OW)				(202) 382-5700 (FTS) 382-5700
ODW			Office of Drinking Water	(202) 382-7575 (FTS) 382-7575
f. Office of Policy, Planning and Evaluation (OPPE)				(202) 382-4332 (FTS) 382-4332
OPP			Office of Pollution Prevention	(202) 382-4028 (FTS) 382-4028
	PPD		Pollution Prevention Division	(202) 245-3557 (FTS) 245-3557
g. EPA Regional Offices				
	Reg. I		Region I, Air Management Division, Boston, MA	(617) 565-4502 (FTS) 835-4502
	Reg. II		Region II, Air and Waste Management Division, New York, NY	(212) 264-2517 (FTS) 264-2517
	Reg. III		Region III, Air Management Division Philadelphia, PA	(215) 597-1193 (FTS) 597-1193

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT (Continued)

Acronym				
Office	Division	Branch	Name	Telephone
	Reg. IV		Region IV, Air, Pesticides, and Toxics Management Division, Atlanta, GA	(404) 347-2864 (FTS) 257-2864
	Reg. V		Region V, Air and Radiation Management Division, Chicago, IL	(312) 886-6793 (FTS) 886-6793
	Reg. VI		Region VI, Air, Pesticides, and Toxics Management Division, Dallas, TX	(214) 655-7223 (FTS) 255-7223
	Reg. VII		Region VII, Air and Toxics Division, Kansas City, KS	(913) 551-7603 (FTS) 276-7603
	Reg. VIII		Region VIII, Air and Toxics Division, Denver, CO	(303) 293-1761 (FTS) 330-1761
	Reg. IX		Region IX, Air Management Division San Francisco, CA	(415) 744-1086 (FTS) 484-1086
	Reg. X		Region X, Air and Toxics Division, Seattle, WA	(206) 553-8578 (FTS) 399-8578
2. National Institute for Occupational Safety and Health (NIOSH)				
OPPE			Office of Program Planning and Evaluation	(404) 639-3794 (FTS) 236-3794
	DBBS/		Division of Biomedical and Behavioral Sciences, Cincinnati, OH	(513) 533-8465 (FTS) 684-8465
		ABB	Applied Biology Branch	(513) 533-8433 (FTS) 684-8433
		APEB	Applied Physiology and Ergonomics Branch	(513) 533-8291 (FTS) 684-8291
		ETB	Experimental Toxicology Branch	(513) 533-8392 (FTS) 684-8392
	DRDS/		Division of Respiratory Disease Studies, Morgantown, WV	(304) 291-4474 (FTS) 923-4474
		LIB	Laboratory Investigations Branch	(304) 291-4593 (FTS) 923-4593

TABLE 1. KEY TO ACRONYMS USED IN THIS DOCUMENT (Continued)

Acronym				
Office	Division	Branch	Name	Telephone
		CIB	Clinical Investigations Branch	(304) 291-4755 (FTS) 923-4755
		EIB	Environmental Investigations Branch	(304) 291-4304 (FTS) 923-4304
		EPIB	Epidemiology Investigations Branch	(304) 291-4476 (FTS) 923-4476
	DSHEFS/		Division of Surveillance, Hazard Evaluations and Field Studies, Cincinnati, OH	(513) 841-4428 (FTS) 684-4428
		IWSB	Industry Wide Studies Branch	(513) 841-4203 (FTS) 684-4203
		SB	Surveillance Branch	(513) 841-4303 (FTS) 684-4303
	DSDTT		Division of Standards Development and Technology Transfer	(513) 533-8302 (FTS) 684-8302
	DSPE/		Division of Physical Sciences and Engineering	(513) 841-4321 (FTS) 684-4321
		ECT	Engineering Control Technology Branch	(513) 841-4221 (FTS) 684-4221
		MRSB	Measurement Research Support Branch	(513) 841-4263 (FTS) 684-4263
		MRB	Methods Research Branch	(513) 841-4241 (FTS) 684-4241

TABLE 2. CLEARINGHOUSE CHEMICAL IDENTIFIERS

Clearinghouse #	Pollutant
CL-ABRAS	Abrasives
CL-ACID	Acidic compounds
CL-ADIP	Adipates
CL-ALDEHYD	Aldehydes
CL-ALKYLPB	Alkyl lead compounds
CL-ALLERG	Allergens
CL-ALMERC	Alkyl mercury compounds
CL-ALUM	Aluminum compounds
CL-AMINE	Amines
CL-AROMHC	Aromatic hydrocarbons
CL-BACT	Bacteria
CL-BROM	Bromine compounds
CL-BTX	Benzene, toluene, xylene
CL-CADMIUM	Cadmium compounds
CL-CARBON	Total carbon
CL-CARCIN	Carcinogens
CL-CFC	Chlorofluorocarbons
CL-CHC	Chlorinated hydrocarbons
CL-CHLOR	Chlorine compounds
CL-CHROME	Chromium compounds
CL-COE	Coke oven emissions
CL-CONSUMR	Consumer products
CL-COPPER	Copper compounds
CL-COTDUST	Cotton dust
CL-CREOSOL	Creosols
CL-CUTFLU	Cutting fluids
CL-DGAEA	Diethylene glycol alkyl ethers and acetates
CL-DIESEL	Diesel fuel emissions
CL-DIISOCY	Diisocyanates
CL-DIOXIN	Dioxins
CL-DYE	Dyes
CL-ETHERS	Ethers
CL-ETS	Environmental tobacco smoke
CL-EXPLO	Explosives
CL-FUELOIL	Waste derived fuel oil emissions
CL-FUNG	Fungicides
CL-FURAN	Furans
CL-GLASS	Fibrous glass dust
CL-HALOGHC	Halogenated hydrocarbons
CL-HALOME	Halomethanes
CL-HAPS	Title III hazardous air pollutants
CL-HAZWAST	Hazardous wastes
CL-HCARB	Hydrocarbons
CL-HERB	Herbicides
CL-HEXANE	Hexane isomers
CL-IAP	Indoor air pollutants
CL-INMERC	Aryl and inorganic mercury compounds
CL-INORGAN	Inorganic compounds
CL-INOTIN	Inorganic tin and oxide compounds
CL-INSMOLY	Insoluble molybdenum compounds
CL-INSRHOD	Insoluble rhodium compounds
CL-INSTUNG	Insoluble tungsten compounds
CL-IRON	Iron compounds
CL-MANG	Manganese compounds

TABLE 2. CLEARINGHOUSE CHEMICAL IDENTIFIERS (Continued)

Clearinghouse #	Pollutant
CL-MAPP	Methyl acetylene-propadiene mixture
CL-METAL	Metallic compounds
CL-METOXBZ	Methoxybenzene compounds
CL-MINDUST	Mineral dusts
CL-MINFIB	Mineral fibers
CL-MOM	Mineral oil mist
CL-MS	Mineral spirits
CL-NICKEL	Nickel compounds
CL-NITRATE	Nitrates
CL-NITRITE	Nitrites
CL-NITROSO	Nitroso compounds
CL-NMHC	Non-methane hydrocarbons
CL-ODOR	Odors
CL-OH	Hydroxides
CL-ORGANIC	Organic compounds
CL-PAH	Polycyclic aromatic hydrocarbons
CL-PATHOGN	Pathogens
CL-PCO	Photochemical oxidants
CL-PEST	Pesticides
CL-PHARM	Pharmaceuticals
CL-PHENOL	Phenols
CL-PHOSPHA	Phosphates
CL-PHTH	Phthalates
CL-PLAS	Plasticizers
CL-PLAT	Platinum compounds
CL-PM	Particulate matter
CL-POM	Polycyclic organic matter
CL-PYRO	Pyro powders
CL-RAD	Radiation
CL-RCSPP	Rosin core solder pyrolysis products
CL-RESIN	Resins
CL-ROSIN	Rosin vapors
CL-RUBSOL	Rubber solvents
CL-SALTS	Salts
CL-SEWSLUD	Sewage sludge
CL-SILVER	Silver compounds
CL-SOLMOLY	Soluble molybdenum compounds
CL-SOLRHOD	Soluble rhodium compounds
CL-SOLTUNG	Soluble tungsten compounds
CL-SOLVENT	Solvents
CL-SPORES	Fungal spores
CL-SULFATE	Sulfates
CL-SULFIDE	Sulfides
CL-SULFITE	Sulfites
CL-SVOC	Semivolatile organic compounds
CL-TIN	Organic tin compounds
CL-TRS	Total reduced sulfur
CL-VARIOUS	Various pollutants
CL-VEG	Vegetable oil mist
CL-VOC	Volatile organic compounds
CL-WELD	Welding fumes
CL-WOOD	Wood smoke

FIGURE 1. SAMPLE ENTRY

CONTACT: AEERL/ATRD/IPB, Dean Smith (919) 541-2708
DOCUMENT CONTROL NUMBER: CL-BIB-0324

TITLE:
Chlorofluorocarbon Chemical Substitutes

Chlorofluorocarbon Chemical Substitutes
Started 8/86; Report due 9/91
AEERL/ATRD/IPB, Dean Smith (919) 541-2708

DESCRIPTION:
Chlorofluorocarbons (CFC's) are suspected of depleting ozone in the stratosphere. Before the year 2000, the use of CFC's in consumer projects will probably be curtailed. Alternative compounds are being considered by industry; however, these chemicals have yet to pass toxicity and safety testing. This project is investigating backup CFC substitutes in case the compounds industry has selected to use as refrigerants, foam blowing agents, solvents, and compounds in fire extinguisher fail to pass testing. To date, ten new compounds have been synthesized. The ten new compounds fall into two major categories: 3- and 4-carbon HCFC's and HFC's; and perfluoro- or hydrofluoro-ethers.

KEYWORDS THAT REFERENCE THIS PROJECT ARE:

CL-CFC	CHLOROFLUOROCARBONS
CL-ETHER	ETHERS
CL-SOLVENT	SOLVENTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPA1	ENVIRONMENTAL PROTECTION AGENCY
10028-15-6	OZONE
28	CHEMICALS AND ALLIED PRODUCTS
286	INDUSTRIAL ORGANIC CHEMICALS
2869	INDUSTRIAL ORGANIC CHEMICALS, NEC
39	MISCELLANEOUS MANUFACTURING INDUSTRIES
399	MISCELLANEOUS MANUFACTURES
3999	MANUFACTURING INDUSTRIES, NEC
593-70-4	CHLOROFLUOROMETHANE

END OF DOCUMENT

PROJECT SUMMARIES

CL-BIB-0012
Coke Oven Emissions: Charging, Topside Leaks, Door Leaks NESHAP
Re-proposal FY 92
OAQPS/ESD/SDB, Amanda Agnew (919) 541-5268

The coke oven NESHAP will be reproposed 11/91. Promulgation is scheduled for 11/92. This rule reduces emissions from all new and existing coke batteries in the iron and steel industry. The CAA Amendments specify maximum emission limits for these sources.

CL-COE	COKE OVEN EMISSIONS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
33	PRIMARY METAL INDUSTRIES
331	BLAST FURNACE AND BASIC STEEL PRODUCTS
3312	BLAST FURNACES AND STEEL MILLS

CL-BIB-0059
Health Assessment Document for Acrolein
Final report due FY 91
OHEA/ECAO-RTP, William Ewald (919) 541-4164

This document is one of a series of health assessment documents (HADs). It is a comprehensive assessment of the known health data, including carcinogenicity, mutagenicity, teratogenicity, and reproductive effects from all exposure routes on acrolein. The HADs serve as the scientific database for potential health effects and are used by the OAQPS to determine the possible listing of hazardous air pollutants under Sections 111 and 112 of the Clean Air Act. The HAD report number is EPA-600/8-86-014F.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
107-02-8	ACROLEIN

CL-BIB-0061
Health Assessment Document for Acetaldehyde
Final report due FY 91
OHEA/ECAO-RTP, William Ewald (919) 541-4164

This document is one of a series of health assessment documents (HADs). It is a comprehensive assessment of the known health data, including carcinogenicity, mutagenicity, teratogenicity, and reproductive effects, from all exposure routes on acetaldehyde. The HADs serve as the scientific data base for potential health effects and are used by the OAQPS to determine the possible listing of hazardous air pollutants under Sections 111 and 112 of the Clean Air Act. The HAD report number is EPA-600/8-86-015F.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
75-07-0	ACETALDEHYDE

CL-BIB-0062
Health Assessment Document for Hydrogen Sulfide
Final report due FY 91
OHEA/ECAO-RTP, Chon Shoaf (919) 541-4155

This document is one of a series of health assessment documents (HADs). It is a comprehensive assessment of the known health data, including carcinogenicity, mutagenicity, teratogenicity, and reproductive effects, from all exposure routes on hydrogen sulfide. The HADs serve as the scientific database for potential health effects and are used by the OAQPS to determine the possible listing of hazardous air pollutants under Sections 111 and 112 of the Clean Air Act. The HAD report number is EPA-600/8-86-026F.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
7783-06-4	HYDROGEN SULFIDE

CL-BIB-0103
Atmospheric Measurements of Trace Volatile Organic Compounds
Ongoing; report due 11/90
ORD/AREAL/CPCD, Larry Cupitt (919) 541-2270

Ambient measures of HAPs in urban areas have been made. Statistical analysis is proceeding to determine how far in space and time the ambient measurements may be extrapolated. A report on analysis of data collected in Atlanta is expected in Fall 1991.

AM	AMBIENT MONITORING
CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0108
Determine Pulmonary and Immune System Toxicity
Ongoing; started 10/81; complete 9/96
OHR/HERL-RTP, Gary Hatch (919) 541-2658

DESCRIPTION:
Project goals are to: 1) assess the impact of exposure to inhaled air toxics on the pulmonary and immune system; 2) understand basic mechanisms of toxicity that may affect dose-response relationships to HAP's, and 3) understand the disease processes resulting from exposure to HAP's. Because inhaled compounds first encounter pulmonary organs and the lung's immune system and because lung immune cells are the first line of defense against invading microorganisms and against tumors initiated in or metastasized to the lung, effects of air toxics will be assessed using new methods for assessing immune functions in the lung as well as the more traditional approach that employs spleen cells to measure systemic immune responses. Effects of the air toxics on resistance to challenge with appropriate infectious agents or transplantable tumors will be assessed in rats and mice with special emphasis on pulmonary disease models. Effects of air toxics on immunologic responses that are allergenic will also be assessed. Research to date has generated chemical-specific data with which the health risk from individual compounds can be assessed. Compounds studied include epichlorhydrin, styrene, methanol, toluene, perchloroethylene, and phosgene.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
TT	TOXICITY TESTING
100-42-5	STYRENE
106-89-8	EPICHLOROHYDRIN
108-88-3	TOLUENE
127-18-4	TETRACHLOROETHYLENE
67-56-1	METHANOL
75-44-5	PHOSGENE

CL-BIB-0109
Determine Neurotoxic Dose-Effect Relationships
Ongoing; started 10/81; complete 9/96
ORD/OHR/HERL-RTP, Phillip Bushnell (919) 541-7747

DESCRIPTION:
The goal of this project is to provide generic methods for evaluating selected classes of chemicals listed by the 1990 CAA Amendments, more than 100 of which have reported neurotoxic effects, making a chemical-by-chemical analysis unfeasible, and to evaluate timing and route on neurotoxicity endpoints. This information will improve the EPA's ability to assess accurately the neurotoxicity of VOC's, and to make regulatory decisions regarding residual risk under the CAA Amendments. Prototype VOC's identified by OAQPS to be of concern will be studied. Most VOC's affect the nervous system acutely and are quickly metabolized and excreted; therefore, the timing of exposure and functional assessment is a critical variable. Dose-effect relationships for effects of prototype VOC's on function will be assessed both during and after exposure and will be compared. Development and validation of methods to quantify function during inhalation exposure to VOC's will focus on behavior (cognitive and sensory function) and neurophysiology (analyses of the visual and auditory systems in rats and in human volunteers, with results compared using cross-species mapping (CSM). Methods have been developed to assess a wide range of endpoints for studies of toluene, p-xylene, styrene, solvents, and carbon disulfide.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
CL-SOLVENT	SOLVENTS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
TT	TOXICITY TESTING
100-42-5	STYRENE
106-42-3	XYLENE,P-
108-88-3	TOLUENE
75-15-0	CARBON DISULFIDE

CL-BIB-0110
Characterize Genotoxic Dose-Response Relationships
Ongoing; started 10/79; complete 9/95
OHR/HERL-RTP, Joellen Lewtas (919) 541-3849

This project's goal is to provide dose-response, metabolism, and dosimetry data on the mutagenicity and carcinogenicity of priority hazardous air pollutants. This project will focus on complex mixtures and individual components of combustion products (products of incomplete combustion, PIC's) including polycyclic organic matter (POM's) such as nitrated and oxygenated polycyclic organics. Endpoints to be examined include gene mutation, DNA damage, chromosomal effects, oncogenic transformation, and tumor formation. Tracheal cell metabolism and dosimetry assays will be developed, validated, and utilized to provide dose-response data on pulmonary carcinogens. Metabolism and dosimetry studies will be conducted to evaluate human exposure and dosimetry relationships. New methods for detecting and quantitating DNA adducts will be employed to relate in vitro, in vivo animal and human dosimetry.

CL-CARCIN	CARCINOGENS
CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
CL-POM	POLYCYCLIC ORGANIC MATTER
EPA	ENVIRONMENTAL PROTECTION AGENCY
TT	TOXICITY TESTING

CL-BIB-0111
Identify and Evaluate Toxic Components of Air Pollution
Ongoing; started 10/81; complete 9/95
OHR/HERL-RTP, Joellen Lewtas (919) 541-3849

The purpose of this program is to develop and validate methods to identify mutagenic and potentially carcinogenic components in ambient air and source emissions and to quantify the contribution of specific genotoxicants to mutagenicity. The approach will involve bioassay-directed fractionation and characterization methodologies. Microbioassay methods recently developed are being used to couple bioassay to HPLC methodologies. Biologically active fractions will be further fractionated and chemically/biologically analyzed. Research will continue to determine the significance of compounds recently identified as part of this project, including nitrated PAH and azaarenes.

AM	AMBIENT MONITORING
CL-CARCIN	CARCINOGENS
CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
CL-PAH	POLYCYCLIC AROMATIC HYDROCARBONS
EPA	ENVIRONMENTAL PROTECTION AGENCY
TT	TOXICITY TESTING

CL-BIB-0114
Develop Methods to Quantify Developmental and Reproductive Toxicity of Air Pollutants
Ongoing; started 10/84; complete 9/96
OHR/HERL-RTP, Ralph Cooper (919) 541-4084

The purpose of this project is to develop, validate, and utilize methods to identify and quantify the potential developmental and reproductive toxicity of chemicals emitted to the air by point and non-point sources. Specific goals include: 1) determining critical concentration/duration factors in toxicity; 2) examining the relevance of reversible reproductive effects in the risk assessment process; and 3) developing and validating quantitative dose-response models. The 1990 CAA Amendments will ultimately require developing more advanced risk assessment methods than are used in the present RfC process. This project will provide the basis for improved risk assessments for developmental and reproductive toxicants. Both in vivo and in vitro methods will be used in a multifaceted approach designed to evaluate pharmacokinetic parameters and biological responses as a function of exposure concentration and duration using a few priority chemicals. This project will build upon the techniques developed and applied to the question of the developmental and reproductive toxicity of methanol. Both the Developmental and the Reproductive Toxicity Risk Assessment Guidelines provide research recommendations for improving the risk assessment of the health endpoints that will be studied.

AM	AMBIENT MONITORING
CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
TT	TOXICITY TESTING

CL-BIB-0115
Integrated Air Cancer Project (IACP)
Ongoing; started FY 84; complete 9/92
ORD/OHR/HERL-RTP, Joellen Lewtas (919) 541-3849

The IACP is an interdisciplinary research program aimed at identifying the major carcinogenic chemicals emitted into the air, the specific sources of these chemicals, and their impact on human exposure. Three EPA laboratories (AREAL, AEERL, and HERL) are working on the IACP's goals. These goals are: to develop scientific methods and data bases for identifying the major sources of carcinogenic chemicals emitted into the air and/or arising from atmospheric transformation. This project is also designed to improve the methodology and data base for assessing human exposure and risk to airborne carcinogens. Utilizing monitoring data and modeling expertise, the studies will focus on specific problem areas and attempt to develop relationships between sources and receptors. This project has focused on the evaluation and source identification of the products of incomplete combustion from residential wood combustion, automotive emissions, and residential oilheating emissions in field studies in Raleigh, NC, Albuquerque, NM, Boise, ID, and Roanoke, VA. Portions of this work have been published in EPA Report No. 600/9-88-015 and No. 600/9-87-010. A major report on the Boise, ID, study will be available by October 1991.

CL-CARCIN	CARCINOGENS
CL-WOOD	WOOD SMOKE
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0141
Field Assessment of Air Emissions from Hazardous Waste Dewatering Operations
Ongoing
ORD/OERTD/RREL-CIN, Paul Warner (513) 569-7755

This field study will assess the emissions from dewatering devices used to remove water from the sludge of hazardous waste. Sample analysis will be done for VOC, semi-VOC, and some specific compounds. Data collection has been completed. An internal report is due June 1990.

CL-HAZWAST	HAZARDOUS WASTES
CL-SEWSLUD	SEWAGE SLUDGE
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0161
Particulate and Tissue Analysis Service and Research
Ongoing; started 10/76
NIOSH/DBBS/ABB, Bob Riley (513) 533-8400

This project will provide lung particulate burden data through the analysis of human lung tissues by automated analytical electron microscopy.

CL-PM	PARTICULATE MATTER
CL-VARIOUS	VARIOUS
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
TT	TOXICITY TESTING

CL-BIB-0162
Evaluation of Mesothelioma Production by Asbestos Substitutes
Ongoing; started 10/84; complete late FY 92
NIOSH/DBBS/ABB, Bob Riley (513) 533-8400

Industry is suggesting two modified chrysotile products as safety substitutes for asbestos. The project will assess the safety of these materials through animal testing, in which pleural implants are used to compare reactions to base fibers versus the substitutes. Data collection is complete; tissue pathology analyses are underway.

NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
TT	TOXICITY TESTING
12001-29-5	CHRYSOTILE
1332-21-4	ASBESTOS

CL-BIB-0181
Vanadium Pentoxide - NTP Chemical Management
Started 10/83; complete 9/91
NIOSH/DBBS/ETB, William Moorman (513) 533-8275

Vanadium pentoxide was nominated to the NTP as a vanadium compound with significant potential for human exposure by NCI, OSHA, EPA, NIOSH, and MSHA. This project will provide NTP toxicological direction for acute and chronic information (organ function toxicity and cancer). The 14- and 19-day studies are complete and the initial results have been compiled.

NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
TT	TOXICITY TESTING
1314-62-1	VANADIUM PENTOXIDE

CL-BIB-0195
Effective Silica Indices of Respirable Mineral Dusts
Ongoing; started 10/84
NIOSH/DRDS/ENIB, William Wallace (304) 291-4421

This project seeks to determine the significance of the factors that affect the fibrogenic potential of silica. Present correlation of exposure is based on particle count or particle mass. Investigations include spectroscopic characterization of surface composition of quartz particles in mixed composition respirable dusts and determination of the role of surface properties in distinguishing the cytotoxicity of quartz from aluminosilicates.

HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
7631-86-9	SILICA

CL-BIB-0224
Ethylene Oxide Mortality Study - NCI
Ongoing; started 10/82
NIOSH/DSHEFS/IWSB, Leslie Stayner (513) 533-8306

This is a cohort mortality study of workers who have been exposed to ethylene oxide in the course of sterilizing medical supplies or spices. The mortality experience of the cohort will be compared to that of the general population, stratified by age, race, sex, and calendar time. Further analysis by dose categories will be conducted to detect any dose-response. Exposure categorization will be based on existing industrial hygiene sampling data, new sampling data collected by NIOSH, and historial reconstruction based on process descriptions. The principal hypothesis to be tested is that exposure to ethylene oxide increases the risk of leukemia.

ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
51	WHOLESALE TRADE-NONDURABLE GOODS
514	GROCERIES AND RELATED PRODUCTS
5149	GROCERIES AND RELATED PRODUCTS, NEC
75-21-8	ETHYLENE OXIDE
80	HEALTH SERVICES
806	HOSPITALS

CL-BIB-0227
Update of Completed Cohort Mortality Studies - NCI
Ongoing; started 10/82
NIOSH/DSHEFS/IWSB, Andrea Okun (513) 841-4203

These are epidemiological studies that assess the association between exposure and the risk of developing disease (primarily cancer). Through this project, cohorts from previous NIOSH studies will be followed through the most current date possible, additional death information will be added to the file, the analysis will be rerun, and new reports will be prepared. Therefore, the reanalysis will include a greater number of deaths (increasing the statistical power) and the latency period will be extended five to ten years (depending on the individual study).

CL-PEST	PESTICIDES
ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
100-42-5	STYRENE
106-99-0	BUTADIENE,1,3-
127-18-4	TETRACHLOROETHYLENE
1336-36-3	POLYCHLORINATED BIPHENYLS
71-43-2	BENZENE
7440-43-9	CADMIUM
75-01-4	VINYL CHLORIDE

CL-BIB-0230
Medical, Biometric and Industrial Hygiene Study of Emerging Problems
Ongoing; started 10/79
NIOSH/DSHEFS/IWSB, Andrea Okun (513) 841-4203

The approach of this project generally will be to conduct literature searches and field surveys to collect information to determine if epidemiological studies (environmental, morbidity, and/or mortality) are feasible, and when feasible, to develop protocols as appropriate throughout the year and submit to the office of the director NIOSH, for approval. Requested assistance to other division or institute programs will be provided as required.

CL-VARIOUS	VARIOUS
ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

CL-BIB-0232
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA
Ongoing; started 10/81
NIOSH/DSHEFS/IWSB, Ken Mallingford (513) 841-4314

Chemicals will be selected for inclusion in this project based on the mutual interests of both NIOSH and EPA. EPA suggests chemicals needing further evaluation prior to issuing regulations under the Toxic Substances Control Act. The evaluations will be conducted in three phases: I - a review of the toxic properties of the chemical; II - walk-through surveys conducted at companies for exposure evaluation and epidemiology feasibility assessment; and III - the most appropriate companies will be selected for in-depth industrial hygiene sampling surveys.

CL-TIN	ORGANIC TIN COMPOUNDS
ES	EPIDEMIOLOGY STUDY
HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
101-14-4	CURENE
110-80-5	ETHOXYETHANOL, 2-
111-76-2	ETHYLENE GLYCOL MONOBUTYL ETHER
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE
32196-63-7	GLYCOLS, POLYETHYLENE, MONO(2,3-EPOXY-2-
50-00-0	FORMALDEHYDE
75-21-8	ETHYLENE OXIDE
9016-45-9	ANTAROX

CL-BIB-0243
Mortality Study of Workers Exposed to Toluene Diisocyanate
Started 6/83; complete summer 1991
NIOSH/DSHEFS/IWSB, Teresa Schnorr (513) 841-4411

This study will assess the association between exposure to toluene diisocyanate and the risk of developing respiratory cancer. A cohort of approximately 8,000 men and women employed at four different polyurethane foam manufacturing plants between 1958 and 1982 have been identified. Their employment histories and demographic data will be entered into a master file, and their vital status determined through follow-up with SSA, IRS, Post Office, Bureau of Motor Vehicles and a private Case-Location Service. Death certificates will be obtained from the appropriate states and the underlying cause of death coded according to the International Classification of Disease Revision in effect at the time of death. Standard life table analysis will be conducted to determine if the cohort has experienced excess mortality.

ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
26471-62-5	TOLUENE DIISOCYANATE
28	CHEMICALS AND ALLIED PRODUCTS
285	PAINTS AND ALLIED PRODUCTS
2851	PAINTS AND ALLIED PRODUCTS

CL-BIB-0244
Uranium Miners-Low Dose Investigation
Started 10/82; ongoing
NIOSH/DSHEFS/IWSB, Robert Roscoe (513) 841-4411

This epidemiologic study will assess the association between exposure to low levels of radon daughters and the risk of developing lung cancer. The project consists of two components: (1) A questionnaire survey of all living miners and the next-of-kin of miners who died after 1965. The questionnaire is designed to collect data concerning occupational exposures, smoking history, and medical history. (2) After updating the computer files with the questionnaire data and the vital status data as of 1987, a cohort lung cancer analysis is underway on 3,350 white males, 775 Navaho males, and a few other groups. Mortality analyses will also be performed on various subcohorts based on exposure, smoking, dietary, and racial categories.

CL-ETS	ENVIRONMENTAL TOBACCO SMOKE
CL-VARIOUS	VARIOUS
ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
10	METAL MINING
10043-92-2	RADON
109	MISCELLANEOUS METAL ORES
1094	URANIUM-RADIUM-VANADIUM ORES

CL-BIB-0280
Health Assessment Document for Chlorine and Hydrogen Chloride, External Review
External review draft due FY 91
OHEA/ECAO-RTP, Beverly Comfort (919) 541-4165

This document is one of a series of health assessment documents (HADs). It is a comprehensive assessment of the known health data, including carcinogenicity, mutagenicity, teratogenicity, and reproductive effects, from all exposure routes on chlorine and hydrogen chloride. The HADs serve as the scientific data base for potential health effects and are used by the OAQPS to determine the possible listing of hazardous air pollutants under Sections 111 and 112 of the Clean Air Act. The HAD report number is EPA-600/8-87-041A.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
7647-01-0	HYDROGEN CHLORIDE
7782-50-5	CHLORINE

CL-BIB-0281
Development of Methods to Interpret Metabolism Data in Exposure Assessments
Draft report complete
OHEA/EAC, Richard Walentowicz (202) 475-8922

Pharmacokinetics data are being studied to assist in exposure assessments. The project addresses various aspects of metabolism and pharmacokinetic modeling for application in exposure and risk assessments. Techniques that look at scaling factors for appropriate extrapolation among species are being considered as is the concept of physiological time.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
TT	TOXICITY TESTING

CL-BIB-0282
Health Assessment for Trichloroethylene Cancer Update
Ongoing
OHEA/HHAG, Charlie Ris (202) 382-5898

A comprehensive assessment of the known health data for carcinogenicity from all exposure routes on trichloroethylene is being studied. This is an updated carcinogenicity assessment based on new inhalation and oral carcinogenicity bioassays as well as additional epidemiological studies.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
79-01-6	TRICHLOROETHYLENE

CL-BIB-0289
Methods Development for Hazardous Waste Combustors
Ongoing; started 10/86
ORD/AREAL, Larry Johnson (919) 541-7943

Several tasks are included in this project, including the sampling of semivolatiles, volatiles, toxic metals, HCl, and CO. Generally, methods are being developed to evaluate field testing procedures. Statistical analyses are being done to determine accuracy and precision of the methods.

CL-HAZWAST	HAZARDOUS WASTES
CL-METAL	METALLIC COMPOUNDS
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
630-08-0	CARBON MONOXIDE
7647-01-0	HYDROGEN CHLORIDE

CL-BIB-0291
Monitoring Human Exposure to Hazardous Air Pollutants (HAPs)
Started 10/82; ongoing
ORD/AREAL/EARD, Ross Highsmith (919) 541-7828

Sampling procedures are being developed to monitor human exposure to a variety of compounds; for instance, nicotine has been sampled and analyzed, as well as metals and VOCs. "Initial Results from the PTEAM Study, Survey Design, Population Response Rate, Monitor Performance, and Quality Control Results" was presented at the 1991 AWMA/EPA Air Toxics Symposium.

CL-METAL	METALLIC COMPOUNDS
CL-VARIOUS	VARIOUS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
54-11-5	L-NICOTINE

CL-BIB-0296
Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho
Ongoing; started FY 86
EPA Region X, Jon Schweiss (206) 553-1690

This study is evaluating different VOC sources at the plant. Emissions have been monitored and the data modeled to assess health risk. Monitoring results will be used to direct further source testing in Winter 1991. Additional monitoring will be conducted by the Idaho Air Quality Bureau.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
SS	SOURCE SAMPLING
107-02-8	ACROLEIN
20	FOOD AND KINDRED PRODUCTS
206	SUGAR AND CONFECTIONERY PRODUCTS
2063	BEET SUGAR
50-00-0	FORMALDEHYDE
67-64-1	ACETONE
75-07-0	ACETALDEHYDE

CL-BIB-0339
Environmental Tobacco Smoke (ETS) Policy Guide
Ongoing; report in progress
OAR/OAIAP/IAD, Bob Axelrod (703) 308-8470

The goal of this project is to develop a workplace smoking policy guide for corporate decision-makers which will provide information for developing smoking policies protective of non-smokers.

CL-ETS	ENVIRONMENTAL TOBACCO SMOKE
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0340
Environmental Tobacco Smoke (ETS) Lung Cancer and Respiratory Disease Risk Assessment
Ongoing; report due 9/91
OAR/OAIAP/IAD, Steve Baynard (202) 382-5722

The goal of this project is to generate a report that quantifies the impact of lung cancer and other respiratory disease risk from ETS exposure in the non-smoking public in order to place in perspective EPA's public information efforts on this pollutant and to guide mitigation measures.

CL-ETS	ENVIRONMENTAL TOBACCO SMOKE
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
RDG	REG DEVELOPMNT GUIDE

CL-BIB-0341
Designing for Good Indoor Air Quality: An Introduction for Design Professionals
Ongoing; complete Fall 1991
OAR/OAIAP/IAD, Bob Thompson (703) 308-8792

This project will result in a guide for architects and design engineers which provides information on design and construction techniques to eliminate indoor air pollution in public and commercial buildings.

CL-IAP	INDOOR AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0348
Refinement of a Detection and Analysis Approach to Volatile Organic Compound Release Characterization Using a Whole Air Technique
Started FY 87; reports in progress
EPA Region VII, Mark Thomas (913) 236-3884

Two chemicals were used in a portable generator to set up a test atmosphere. The atmosphere was sampled using a stainless steel canister and Tenax tubes deployed in field configuration, based on meteorological conditions. Analyses were performed on subsamples of the spheres and on the Tenax tubes using GC/FID. Quality assurance measures will be developed with further evaluation of the sampler deployment and additional field studies.

AM	AMBIENT MONITORING
EPA	ENVIRONMENTAL PROTECTION AGENCY
108-88-3	TOLUENE
71-55-6	TRICHLOROETHANE,1,1,1-

CL-BIB-0350
Dosimetry Models for VOC Hazard Identification
Ongoing; started 10/87; complete 9/94
ORD/OHR/HERL-RTP, John Overton (919) 541-7515

The purpose of this project is to develop a state-of-the art dosimetry model for VOC's that assesses respiratory tract deposition, uptake, and distribution to other body tissues to allow EPA to estimate internal dose based on exposure data for classes of VOC's, rather than the present reliance on chemical-specific models. Existing state-of-the-art dosimetry models for the lungs and for pharmacokinetic distribution throughout the body will be combined. The model will consist of a series of mass-balance differential equations that quantify VOC concentration within four major types of tissue groups. Necessary experimental data will be obtained in animals and humans for defining appropriate input parameters and validating predictions. Because lung dosimetry and whole body dosimetry models have largely been developed independently, there is a need to link the separate models and develop a combined dosimetry model. An integrated model approach should improve the exposure-dose portion of risk assessments through a unifying concept rather than reliance on a chemical-by-chemical basis.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
TT	TOXICITY TESTING

CL-BIB-0354
CERCLA Designation and Reportable Quantities Regulations
Ongoing; complete 9/91
OSWER/OSW/OERR/ERD, Barbara Hostage (202) 382-2198

Section 304 of the Emergency Planning and the Community Right-to-Know Act establishes State and local emergency notification requirements for releases of extremely hazardous substances (EHS's) and CERCLA hazardous substances. EPA is proceeding with a rulemaking to designate those EHS's that are not CERCLA hazardous substances as such and to adjust their reportable quantity (RQ). The two companion final rules (designation and RQ adjustment) will be published in the Federal Register concurrently. By establishing the same trigger for Federal, State, and local reporting of a given release, the final rules will reduce the burden on the regulated community and State and local response personnel.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
ER	EMERGENCY RESPONSE

CL-BIB-0355
Interpretive Rule on Federally Permitted Releases under CERCLA Section 101(10)
Ongoing; complete FY 92
OSWER/OSW/OERR/ERD, Barbara Hostage (202) 382-2198

A release of any hazardous substance into the environment in an amount equal to or greater than its reportable quantity is subject to reporting requirements unless it is a Federally permitted release. This FR notice defines Federally permitted releases under 101(10) of CERCLA and will focus on reporting requirements to the National Response Center as well as CERCLA liability. The rule was proposed July 1988 and will be finalized in 1991.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
ER	EMERGENCY RESPONSE

CL-BIB-0361
Field Testing and Method Evaluation of Chrome Electroplating Plants
Ongoing
OAQPS/TSD/EMB, Frank Clay (919) 541-5236

A number of chrome electroplating plants have been tested to characterize the performance of selected control technologies. Method evaluation was performed concurrent with the field tests. Two field tests are scheduled for Summer 1991 at plants using state-of-the-art control technology. The NESHAP schedule is: proposal, March 1992; promulgation, March 1993. Measurements have focused on hexavalent chromium.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
SS	SOURCE SAMPLING
18540-29-9	CHROMIUM (VI) COMPOUNDS
34	FABRICATED METAL PRODUCTS
347	METAL SERVICES, NEC
3471	PLATING AND POLISHING
7440-47-3	CHROMIUM

CL-BIB-0363
Integrated Risk Information System (IRIS)
Ongoing
OHEA/ECAO-CIN, IRIS User Support (513) 569-7254

IRIS is an electronic on-line data base of summary health risk assessment and regulatory information on chemical substances. The primary purpose is to provide guidance risk values to EPA risk assessors and decision-makers for use in EPA risk assessments. IRIS provides a basis for greater consistency in EPA risk management and decision-making. There are approximately 580 risk assessments for 480 chemicals available on-line.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0364
Phosphogypsum Reconsideration
Ongoing
ORP/CSD/ESB, Craig Conklin (703) 308-8758

In response to the vinyl chloride court decision, the Agency made a voluntary decision to reassess the health risks for radionuclides. The existing data has been reassessed, with reproposal in March 1989, and promulgation December 15, 1989 (54 FR 51654). EPA is granting a limited reconsideration of the portion of the phosphogypsum NESHAP which requires disposal of phosphogypsum in stacks or mines, thereby precluding alternate uses of the material. EPA is simultaneously proposing alternatives to the existing rule (55 FR 13480, 55 FR 13482). At the same time that EPA granted reconsideration, it also granted a limited class waiver from compliance that permits the distribution and use of phosphogypsum for agricultural purposes. The first waiver expired October 1, 1990, and was extended until June 1, 1991. An additional extension until October 1, 1991, has been requested.

CL-RAD	RADIATION
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
RA	RISK ASSESSMENT

CL-BIB-0374
Health Assessment Document for Toluene Diisocyanate
Final report due FY 91
OHEA/ECAO-RTP, Mark Greenberg (919) 541-4156

This project is a comprehensive assessment of the known health data, including carcinogenicity, mutagenicity, teratogenicity and reproductive effects from all exposure routes on toluene diisyocyanate. This document is one of a series of health assessment documents (HADs). The HADs serve as the scientific data base for potential health effects and are used by the OAQPS to determine the possible listing of hazardous air pollutants under Sections 111 and 112 of the Clean Air Act.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
584-84-9	TOLUENE-2,4-DIISOCYANATE

CL-BIB-0384
Chromium Electroplating NESHAP Development
Ongoing
OAQPS/ESD/SDB, Lalit Banker (919) 541-5420

NESHAP development is underway to regulate chromium emissions from industrial chromium electroplating and chromic acid anodizing facilities. Promulgation is expected in the spring of 1993.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
34	FABRICATED METAL PRODUCTS
347	METAL SERVICES, NEC
3471	PLATING AND POLISHING
7440-47-3	CHROMIUM

CL-BIB-0385
Industrial Cooling Towers Chromium NESHAP Development
Ongoing
OAQPS/ESD/ISB, Ron Meyers (919) 541-5407

A technical background information document will be developed. Tasks include field tests to establish performance of controls and cost analysis for alternative controls. NESHAP development is underway to regulate chromium emissions. Promulgation is expected Spring 1993.

EPA ENVIRONMENTAL PROTECTION AGENCY
NESHAP NATL EMIS STD HAZ AP
7440-47-3 CHROMIUM

CL-BIB-0391
Source Category Parameters
Ongoing
OAQPS/ESD/CPB, Bob Rosensteel (919) 541-5608

A data base of emission parameters for the 191 pollutants from the proposed Clean Air Act legislation is under development. The data base is used to rank source categories of emissions and identify the best regulatory candidates. Additional chemicals have been proposed for future study. A draft report was prepared December 14, 1990.

CL-VARIOUS VARIOUS
EPA ENVIRONMENTAL PROTECTION AGENCY
PRA PRE-REG ASSESSMENT
SA SOURCE ASSESSMENT

CL-BIB-0392
The Toxic Interaction Database, MIXTOX
Ongoing
OHEA/ECAO-CIN, Richard Hertzberg (513) 569-7582

This personal computer database contains summary toxicity data from published laboratory studies on toxic interactions between chemicals. The data include the exposure conditions, observed toxic effects and type of interaction, as well as the statistical analysis method used. Diskettes containing the data and access programs are shipped routinely to all regions. There are 3000 chemical interactions on 1650 chemical pairs listed as of May 1991.

CL-VARIOUS VARIOUS
EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT

CL-BIB-0399
Archive and Evaluate Selected Air Toxics Dispersion Models
Ongoing; complete FY 91
OAQPS/TSD/SRAB, Joe Touma (919) 541-5383

The purpose of this project is to archive data bases and evaluate toxic air dispersion models.

CL-VARIOUS VARIOUS
DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0401
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development
Ongoing; complete 12/99
ORD/AREAL, William Nelson (919) 541-3184

The purpose of this project is to conduct research on exposure monitoring methods and systems to improve estimates of human exposure to pollutants. Data bases and procedures will be developed to assess human exposure in support of OTS programs. This includes relating exposures to body burdens, development of a geographical information system for exposure assessment and evaluation of data produced in total exposure assessment methods studies. Breath is being used as a biomarker. Currently, VOC's in breath are being monitored. A miniaturized and refined breath sampling device has been developed which allows for quicker sequential sampling and better estimates of pollutant excretion rates. Methods comparisons will be conducted. Additional work to extend the methodology to additional VOC's is being done. Exposure levels in specific microenvironment locations, including hardware stores, indoor swimming pools, and drycleaning establishments are being investigated. Preliminary characterizations of consumer product emissions have shown measurable VOC emissions.

CL-CONSUMR CONSUMER PRODUCTS
CL-VOC VOLATILE ORGANIC COMPOUNDS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
52 BUILDING MATERIALS & GARDEN SUPPLIES
525 HARDWARE STORES
5251 HARDWARE STORES
72 PERSONAL SERVICES
721 LAUNDRY, CLEANING, & GARMENT SERVICES
7216 DRYCLEANING PLANTS, EXCEPT RUG
79 AMUSEMENT & RECREATION SERVICES
799 MISC. AMUSEMENT, RECREATION SERVICES
7999 AMUSEMENT AND RECREATION, NEC

CL-BIB-0406
Determination of Population Exposure to Mobile Source Pollutants
Ongoing; complete 12/91
ORD/AREAL, William Nelson (919) 541-3184

The goal of this research is to extend the general exposure methodology used successfully for CO to other situations and to other mobile source air pollutants. Data from previous population exposure field studies for CO are being reviewed, and data that can be generalized to other areas, such as human activity patterns, are being evaluated in detail. A workshop was conducted in August 1988, on the state-of-the-art of vehicular exposure model development. Currently, this study is sampling air inside car cabins for VOC's and several criteria pollutants. In a second phase of the study, passenger exposures in methanol and gas powered cars will be compared. Data on passenger cabin exposure in suburban routes, commuting routes, and underground tunnels has been collected. Data on passenger exposures in gas powered cars has been collected and will be compared to passenger exposures in methanol powered cars.

CL-METAL	METALLIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
630-08-0	CARBON MONOXIDE

CL-BIB-0408
Integrated Air Cancer Project (IACP)
Started FY 84; complete 9/92
ORD/AREAL, Debra Walsh (919) 541-7531

The IACP is an interdisciplinary research program aimed at identifying the major carcinogenic chemicals emitted into the air, the specific sources of these chemicals, and their impact on human exposure. Three EPA laboratories (AREAL, AEERL, HERL) are working to realize the IACP's goals. Utilizing monitoring data and modeling expertise, the studies will focus on specific problem areas and attempt to develop relationships between sources and receptors. Initial phases of the project focused on the evaluation and source identification of the products of incomplete combustion from residential wood combustion and automotive emissions (Raleigh, NC, Albuquerque, NM, and Boise, ID). Portions of this work have been published in EPA Report No. 600/9-88-015 and No. 600/9-87-010.

CL-CARCIN	CARCINOGENS
CL-WOOD	WOOD SMOKE
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0410
Mortality Study of Workers Exposed to Halowax
Started 10/83; complete 1/92
NIOSH/DSHEFS/IWSB, Elizabeth Ward (513) 841-4481

Two plant sites will be included in this retrospective cohort mortality study. Plant "A" used chlorinated naphthalenes during the early 1940s to coat electrical cables. Approximately 9000 individuals worked at the plant during that time and 800 of them developed dermatitis. Plant "B" used chlorinated naphthalenes from 1966 to 1968, during which time approximately 125 of 600 workers developed chloracne. The observed deaths will be compared to those expected, where the expected deaths are calculated based on a standard population, and are adjusted for age, race, sex, and calendar year.

ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
1825-30-5	NAPHTHALENE, 1,5-DICHLORO-
1825-31-6	NAPHTHALENE, 1,4-DICHLORO-
2050-69-3	NAPHTHALENE, 1,2-DICHLORO-
2050-72-8	NAPHTHALENE, 1,6-DICHLORO-
2050-73-9	NAPHTHALENE, 1,7-DICHLORO-
2050-75-1	NAPHTHALENE, 2,3-DICHLORO-
2198-75-6	NAPHTHALENE, 1,3-DICHLORO-
2198-77-8	NAPHTHALENE, 2,7-DICHLORO-
33	PRIMARY METAL INDUSTRIES
331	BLAST FURNACE AND BASIC STEEL PRODUCTS
3315	STEEL WIRE AND RELATED PRODUCTS
335	NONFERROUS ROLLING AND DRAWING
3357	NONFERROUS WIREDRAWING & INSULATING
36	ELECTRONIC & OTHER ELECTRIC EQUIPMENT
364	ELECTRIC LIGHTING AND WIRING EQUIPMENT
39450-05-0	HALOWAX 1099
58718-66-4	HALOWAX 1000
58718-67-5	HALOWAX 1001

CL-BIB-0424
State/EPA Indoor Radon Survey
Ongoing
ORP/RD/PAB, Jeffrey Phillips (202) 245-4114

The purpose of these surveys is to determine the frequency distribution of radon levels and identify radon hot spots in given States. Statewide and regional frequency distribution of screening measurement results will be estimated. Data has been collected from 34 States. Six additional States are participating in 1991. These studies are statistically significant.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SA	SOURCE ASSESSMENT
10043-92-2	RADON

CL-BIB-0434
Regulatory Investigation of Formaldehyde Emissions from Pressed Wood Products
Ongoing
OTS/CCD/ECCB, George Semeniuk (202) 382-2134

The purpose of the project is to assess indoor risks and identify and implement mitigation measures, if appropriate.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
50-00-0	FORMALDEHYDE

CL-BIB-0445
Chemical Analysis of Particulate Filters (Colorado)
Ongoing; report due FY 91
EPA Region VIII, Dale Wells (303) 293-1773

Analysis for polycyclic aromatic hydrocarbons will be conducted on filters collected from 20 vehicles representing three MOBILE3 classes. Each class was subjected to three different fuels, unleaded regular, 11% MTBE, and 10% ethanol blend (gasohol). Filters from 10 light/medium duty diesels will also be analyzed. These filters were subjected to two types of diesel fues, "typical" and California low sulfur. Two sets of particulate filters were collected from each vehicle. One set is designated for elemental and organic carbon analysis. The second set is to be analyzed for gravimetric determinations and for organic speciation. The methodology from this project will be transferable to other air toxics programs in EPA Region VIII.

CL-DIESEL	DIESEL FUEL EMISSIONS
CL-PAH	POLYCYCLIC AROMATIC HYDROCARBONS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
1634-04-4	ETHER, TERT-BUTYL METHYL
64-17-5	ETHANOL
8006-61-9	GASOLINE

CL-BIB-0449
Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II
Ongoing; report due 1/91
AEERL/CIAD/IAB, James White (919) 541-2851

The phased characterization of the particulate and organic emissions from unvented kerosene space heaters has been completed. (The emissions from 12 kerosene space heaters obtained from the Consumer Products Safety Commission were screened and reported in last year's Phase I study.) Four heaters were selected from Phase I for intensive characterization. These heaters cover a range of design types and Btu ratings. Measurements made during Phase II included aerosol mass via both personal pumps and PM-10 sampler, aerosol size distribution, particulate mutagenicity, and the classical combustion parameters. Volatile gases were collected in Summa canisters; semivolatile gases were collected in XAD. EPA currently is developing a report that will summarize Phase I and Phase II efforts. No further work is anticipated.

CL-IAP	INDOOR AIR POLLUTANTS
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SA	SOURCE ASSESSMENT
8008-20-6	NAVY FUELS JP-5

CL-BIB-0460
The Particle Total Exposure Assessment Methodology
Ongoing
ORD/AREAL/EARD, Lance Wallace (919) 541-1910

This program was developed by EPA to measure and evaluate personal exposure to aerosols. The main field study took place in Fall 1990 in Riverside, California, and included 178 residences. The level of human exposure to particles and the related exposure to sources of aerosol matter is being estimated. This program follows a sequence of programs designed to estimate everyday exposures to other potential hazards such as volatile organic compounds. The program is focused on specific size fractions of aerosol particles analyzed for at least metals, nitotine, and as resources permit, semivolatile organics. A field study will be conducted to help determine the indoor aerosol particle size distribution and concentration spectrum. Portions of this work were presented at the 1989 APCA/EPA Symposium on the Measurement of Toxic and Related Air Pollutants. Data on total mass of the particles have been analyzed. Daytime personal exposures were 50% higher than concurrent indoor or outdoor concentrations. The source of the higher exposures is being investigated.

AM	AMBIENT MONITORING
CL-IAP	INDOOR AIR POLLUTANTS
CL-METAL	METALLIC COMPOUNDS
CL-PM	PARTICULATE MATTER
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SA	SOURCE ASSESSMENT
54-11-5	L-NICOTINE

CL-BIB-0472
Compendium of Indoor Air Quality Measurement Methods
Ongoing
ORD/AREAL, Ross Highsmith (919) 541-7828

The purpose of this project is to compile the most commonly used IAQ measurement methods for technical guidance documents. The base document has been published. The document will be continuously updated.

CL-IAP	INDOOR AIR POLLUTANTS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0475
Study on the Formation of Aerosols and Particulates from the Incineration of Metals
Ongoing
AEERL/CIAD/CRB, William Linak (919) 541-5792

The purpose of this project is to study the formation and combustion formation of submicroaerosols and particulates from the incineration of hazardous waste containing metal compounds.

CL-HAZWAST	HAZARDOUS WASTES
CL-METAL	METALLIC COMPOUNDS
CL-PM	PARTICULATE MATTER
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0498
New Studies of Population Exposure to VOCs and Major Sources of Exposure
Reports in progress FY90
ORD/AREAL, William Nelson (919) 541-3184

The EPA has carried out two studies of human exposure to VOCs. A study in Los Angeles, CA, investigated personal exposures, indoor and outdoor air concentrations, and concentrations in exhaled breath of 25 target chemicals for 50 residents selected using a probability-based sampling procedure. The second study investigated suspected sources of several target chemicals in 11 homes in Bayonne and Elizabeth, NJ. Attached garages as a source of gasoline vapors, smoking as a source of aromatic hydrocarbons and respirable particulates, wearing and storing dry-cleaned clothes as a source of tetrachloroethylene, and air fresheners and moth crystals as a source of para-dichlorobenzene were studied. Data collection has been completed. Reports are available in proceedings of several conferences.

CL-ETS	ENVIRONMENTAL TOBACCO SMOKE
CL-HCARB	HYDROCARBONS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SS	SOURCE SAMPLING
106-46-7	DICHLOROBENZENE,1,4-
127-18-4	TETRACHLOROETHYLENE
8006-61-9	GASOLINE
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0499
Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls
Started FY 87; ongoing
AEERL/CIAD/IAB, John Ruppersberger (919) 541-2432

In the first part of this study, six coatings and several types of concrete blocks were evaluated for their effect in preventing/deterring the passage of radon into homes. All the coatings were found effective if applied carefully. A large variability was found between the types of concrete blocks. A report on these results was submitted for publication in May 1990. A study of the variability of concrete blocks to make recommendations for their use in radon-prone areas has been completed. The study of additional blocks and coatings has also been completed. A comprehensive final report is expected in 1991.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
152	RESIDENTIAL BUILDING CONSTRUCTION
1521	SINGLE-FAMILY HOUSING CONSTRUCTION
32	STONE, CLAY, AND GLASS PRODUCTS
327	CONCRETE, GYPSUM, AND PLASTER PRODUCTS
3271	CONCRETE BLOCK AND BRICK
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0507
Emissions Data Base for Indoor Air Sources
Ongoing
AEERL/PCD/IAB, James White (919) 541-1189

Data have been collected during this project from the literature and in-house EPA projects on indoor air. Both emission rates from various sources and emission factors are presented. The data base will be compatible with an IBM AT and DOS. Periodic updates are planned, as well as the possible inclusion of Canadian data. These data will arise from the literature, Agency research, and other users' research. Caveat: no quality assurance has been performed on the data. Updated software will be available upon request in September 1991.

CL-IAP	INDOOR AIR POLLUTANTS
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0516
Chemical Fractionation and Analysis of China Coal Combustion Emission Samples
Ongoing
ORD/OHR/HERL, Judy Mumford (919) 541-3095

In this project, a cyano semi-prep HPLC column used to fractionate a smoky coal sample extract will be evaluated, bioassay-directed HPLC will be performed, and chemicals in the sample extract will be evaluated in an attempt to identify unknown mutagens or carcinogens.

CL-CARCIN	CARCINOGENS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
TT	TOXICITY TESTING

CL-BIB-0517
A High-Efficiency, High-Volume Compound Annular Denuder Sampler for Phase-Distributed Semi-Volatile Organic Chemicals
Ongoing
ORD/AREAL, Joachim Pleil (919) 541-4680

The objectives of this project are to develop and evaluate a high-volume compound annular denuder (HVCAD) sampler for phase-distributed organics; to determine its performance under field conditions; and to utilize this sampler to expand the existing data base on phase distribution of semi-volatile organic chemicals (SVOC). Sampling will be completed in Fall 1991 and results reported thereafter.

AM	AMBIENT MONITORING
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0520
VOCs Samplers for Superfund Site Applications
Ongoing
ORD/AREAL/MRB, William McClenny (919) 541-3158

In this project, several factors concerning whole-air sampling near Superfund sites are being studied. These include wind speed and direction dependent sampling, spatial integrative sampling, time-resolved sampling, and in-field preconcentration sampling.

AM	AMBIENT MONITORING
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING

CL-BIB-0524
Multi-Sorbent Preconcentrator
Ongoing
ORD/AREAL/MRB, William McClenny (919) 541-3158

The purpose of this project is to eliminate the need for liquid nitrogen during on-site sampling and analysis, thereby making the use of EPA systems more practical in field and stationary site operation. Alternatives to the use of liquid cryogen include closed cycle coolers, thermo-electric coolers, and uncooled solid adsorbents.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING

CL-BIB-0530
Preparation of a Radon/New Construction Report
Started 4/88; report due 2/91
AEERL/CIAD/IAB, Mike Osborne (919) 541-4113

The objective is to develop a manual that provides builders with information on a variety of techniques that are expected to be effective in decreasing potential radon accumulation in houses. In addition, legislators, regulators and residential building code writers may choose to evaluate radon-resistant techniques for potential application to or modification of existing regulations or codes applicable to residential construction. The second edition of the manual has been published.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
RDG	REG DEVELOPMENT GUIDE
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
152	RESIDENTIAL BUILDING CONSTRUCTION
1521	SINGLE-FAMILY HOUSING CONSTRUCTION
1522	RESIDENTIAL CONSTRUCTION, NEC

CL-BIB-0535
Madison Avenue Formaldehyde Study
Started 1/89; ongoing
EPA Region II, Marlon Gonzales (212) 264-2517

The purpose of this study is to measure formaldehyde and VOC concentrations at street level sites and other sites in New York City in order to establish baselines prior to the large-scale introduction of methanol buses, which emit formaldehyde.

AM	AMBIENT MONITORING
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
41	LOCAL AND INTERURBAN PASSENGER TRANSIT
413	INTERCITY AND RURAL BUS TRANSPORTATION
4131	INTERCITY & RURAL BUS TRANSPORTATION
50-00-0	FORMALDEHYDE
67-56-1	METHANOL

CL-BIB-0541
1985 Emissions Deposition Modeling of Air Toxics in Lake Michigan Region
Report due 9/91
EPA Region V, Pam Blakely (312) 886-6054

An emissions inventory has been developed for about 50 air toxic chemicals for consolidated metropolitan areas in Wisconsin, Illinois, Indiana, and Michigan. Deposition modeling will be conducted to quantify atmospheric loadings into Lake Michigan. The final report is projected to be completed by September 1991.

CL-VARIOUS	VARIOUS
DM	DISPERSION MODELING
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0545
Procedures for Estimating and Allocating Area Source Emissions of Air Toxics
Ongoing; report due 5/89
OAQPS/TSD/EIB, Dallas Safriet (919) 541-5371

The objective of this project is to produce a document, now in draft form, that offers procedures for estimating air toxics emissions from area sources. The described techniques generally yield county-wide emissions estimates. Methodologies are also included for allocating county-wide emissions to subcounty grids. The document includes factors for air toxics emissions from the most important or prevalent area source categories found in urban areas, such as mobile sources, heating, and gasoline service stations.

CL-VARIOUS	VARIOUS
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
55	AUTOMOTIVE DEALERS & SERVICE STATIONS
554	GASOLINE SERVICE STATIONS
5541	GASOLINE SERVICE STATIONS

CL-BIB-0548
Method Development for Measuring Condensible Particulate Matter
Ongoing
OAQPS/TSD/EMB, Candace Sorrell (919) 541-1064

A method for measuring condensible particulate matter is being developed. Field testing of the draft method was completed in 1990. A revised draft method is available through the Emission Measurement Technical Information Center (EMTIC), MD-19, U.S. EPA, Research Triangle Park, NC 27711. A revised method was proposed in the Federal Register October 12, 1990. This project is in support of the development of State implementation programs.

CL-PM	PARTICULATE MATTER
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING

CL-BIB-0550
Home Builders' Guide to Indoor Air Quality
Ongoing; guidance document due 1992
OAR/OAIAP/IAD, Betsy Agle (202) 382-7753 (703) 308-8377

The project will result in a guide that identifies techniques including construction methods and procedures that will prevent indoor air problems from occurring in new homes.

CL-IAP	INDOOR AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0553
Staten Island-New Jersey Urban Air Toxics Assessment Program
Started FY 86; complete 1992
EPA Region II, Carol Bellizzi (212) 264-2517

The goals of this project are to assess ambient air quality for selected air toxics, especially for volatile organic compounds (VOC's), to characterize human exposures arising from these air pollutants and identify potential sources using emission inventories and meteorological modeling. The study will combine elements of the New York, New Jersey, and SARA Title III emission inventories. A two-year sampling program was completed in 1989. Monitoring stations include 13 VOC sites, 5 trace metal and benzo[a]pyrene sites, 5 formaldehyde sites, and 5 sites for wind parameters. A more limited indoor air sampling component was included in the project for use in risk characterization.

AM	AMBIENT MONITORING
CL-IAP	INDOOR AIR POLLUTANTS
CL-METAL	METALLIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
RA	RISK ASSESSMENT
50-00-0	FORMALDEHYDE
50-32-8	BENZO(A)PYRENE

CL-BIB-0558
Summary Review of Health Effects Associated with Methyl Methacrylate: Health Issue Assessment
Final report due FY 91
OHEA/ECAO-RTP, William Ewald (919) 541-4164

This document is a Tier I Assessment of the scientific literature concerning the most important health effects associated with methyl methacrylate.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
80-62-6	METHYL METHACRYLATE

CL-BIB-0559
Summary Review of Health Effects Associated with Phthalic Anhydride: Health Issue Assessment
Final report due FY 91
OHEA/ECAO-RTP, William Ewald (919) 541-4164

This document is a Tier I Assessment review of the scientific literature concerning the most important health effects associated with phthalic anhydride. If there are no adverse health effects, and the Office of Air and Radiation makes a decision not to list the substance as a hazardous air pollutant, then the Tier I will be published. If there are significant health effects, a comprehensive Health Assessment Document will be made available in draft form for public and Science Advisory Board review, and subsequent publication as a final document.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
85-44-9	PHTHALIC ANHYDRIDE

CL-BIB-0560
Summary Review of Health Effects Associated with Maleic Anhydride: Health Issue Assessment
Final report due FY 91
OHEA/ECAO-RTP, William Ewald (919) 541-4164

This document is a Tier I Assessment of the scientific literature concerning the most important health effects associated with maleic anhydride.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
108-31-6	MALEIC ANHYDRIDE

CL-BIB-0562
Summary Review of Health Effects Associated with Organic Phosphorus: Health Issue Assessment
Ongoing; final report due FY 91
OHEA/ECAO-RTP, Beverly Comfort (919) 541-4165

This project will involve a Tier I Assessment of the scientific literature concerning the most important health effects associated with organic phosphorus. If there are no adverse health effects, and the Office of Air and Radiation makes a decision not to list the substance as a hazardous air pollutant, then the Tier I will be published. If there are significant health effects, a comprehensive Health Assessment Document will be made available in draft form for public and Science Advisory Board review, and subsequent publication as a final document.

CL-ORGANIC	ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
7723-14-0	PHOSPHORUS (YELLOW)

CL-BIB-0565
Summary Review of Health Effects Associated with Styrene: Health Issue Assessment
Final report due FY 91
OHEA/ECAO-RTP, Chon Shoaf (919) 541-4155

This document is a Tier I Assessment of the scientific literature concerning the most important health effects associated with styrene.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
100-42-5 STYRENE

CL-BIB-0586
National Institute of Standards and Technology General Indoor Air Pollution Concentration Model
Started FY 85; ongoing
ORD/AREAL/ASMD, John Irwin (919) 541-4567

The fundamental objective of this project is to develop a comprehensive validated computer model to simulate dynamic pollutant movement and concentration variation in buildings. The scope of the project is to develop a full-scale, multi-zone building contaminant dispersal model that simulates flow processes (e.g., infiltration, dilution, and exfiltration) and contaminant generation, reaction, and removal processes. The project has three phases; the Phase III report is available: "Progress Toward a General Analytical Method for Predicting Indoor Air Pollution in Buildings," NBSIR-88/3814 (PB88-236716/REB). A final document is anticipated to be published in 1991.

CL-IAP INDOOR AIR POLLUTANTS
DM *DISPERSION MODELING*
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

CL-BIB-0592
Liver Toxicity: Mechanisms/Interactions
Ongoing; complete 9/96
OHR/HERL-RTP, Jane Ellen Simmons (919) 541-7829

The goal of this project is to 1) evaluate liver toxicity and nonadditive interaction potential of air pollutants and 2) elucidate mechanisms of target organ toxicity and mechanistic models to predict/describe nonadditive interactions. Developing an understanding of the mechanisms through which chemicals interact is essential to developing predictive models capable of identifying chemicals or chemical classes likely to interact and the nature and magnitude of the predicted interaction. Experimental animals will be exposed by inhalation or gavage to air pollutants of interest to EPA. When chemical toxicity and/or nonadditivity is observed, dose-response assessments and mechanistic studies to elucidate mechanisms at the cellular and molecular level will be conducted. The effect of exposure route on toxicity and pharmacokinetic parameters such as absorption, metabolism, and distribution will be examined. Significant data gaps exist, particularly on noncancer health effects following inhalation exposure. While humans are exposed, either sequentially or concurrently, to multiple chemicals by various routes, most research to date has focused on toxicity manifested after exposure to a single chemical.

CL-VARIOUS VARIOUS
EPA ENVIRONMENTAL PROTECTION AGENCY
TT TOXICITY TESTING

CL-BIB-0597
Research to Improve Health Risk Assessments (RIHRA)
Ongoing
ORD/OHR/HERL, John Vandenberg (919) 541-4527

The Research to Improve Health Risk Assessment (RIHRA) Program was designed to address issues fundamental to the risk assessment process. The systematic and integrated program is multimedia in scope and draws on experts in EPA and beyond. Research is now focusing on producing data and methods to improve health risk assessments and includes pharmacokinetic modeling, biologically based dose-response modeling, and exposure assessment research. Other primary research areas include cancer, reproductive and pulmonary toxicology, neurotoxicology, and cross-cutting, developmental/multimedia issues. For more data, write John Vandenberg, U.S. EPA ORD/HERL, MD-51, RTP, NC 27711.

CL-VARIOUS VARIOUS
EA EXPOSURE ASSESSMENT
EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT

CL-BIB-0598
Radon Mitigation and Prevention in Schools and Large Buildings
Ongoing
ORP/RD/MPQAB, Kelly Leovic (919) 541-7717

There is a need to expand the knowledge of how to deal with different types of buildings such as schools and workplaces. This EPA project is designed to transfer information developed by EPA concerning radon mitigation and prevention in larger buildings to the States and private sector. This technology transfer is accomplished through EPA contractors who perform radon entry diagnostics and develop mitigation design plans in schools where research is ongoing. Additional transfer is achieved because maintenance staff or private contractors implement the mitigation designs.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
154	NONRESIDENTIAL BUILDING CONSTRUCTION
1541	INDUSTRIAL BUILDINGS AND WAREHOUSES
1542	NONRESIDENTIAL CONSTRUCTION, NEC
82	EDUCATIONAL SERVICES
821	ELEMENTARY AND SECONDARY SCHOOLS
8211	ELEMENTARY AND SECONDARY SCHOOLS

CL-BIB-0599
New House Evaluation Protocol Project (New HEP) for Radon Reduction in New Construction
Ongoing
ORP/RD/MPQAB, Dave Murane (202) 475-9605

The New House Evaluation Program (New HEP) is designed to transfer technology for constructing radon resistant buildings to the private sector and provide data for the development of model building codes. This program identifies construction techniques that consistently prove successful in preventing radon entry into new homes and provides the building industry with guidelines for evaluating the indoor radon potential of prospective building sites. EPA will also use New HEP data to validate and update the techniques outlined in EPA's pamphlet "Radon Reduction in New Construction, An Interim Guide." New construction standards for radon are anticipated to be published in their final form in the fall of 1991.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
152	RESIDENTIAL BUILDING CONSTRUCTION
1521	SINGLE-FAMILY HOUSING CONSTRUCTION

CL-BIB-0602
National Residential Radon Survey
Ongoing
ORP/RD/PAB, Frank Marcinowski (202) 245-4189

The primary objectives of this survey are to (1) estimate the frequency distribution of annual average radon exposures in U.S. homes using year-long measurements; and (2) assess correlations between residential radon concentrations and various factors, such as house construction, heating, and ventilation types. This survey will provide estimates of national and regional residential radon exposure patterns, allowing the valid estimation of health risks and an accurate assessment of the magnitude of the health threat due to radon exposures in U.S. homes.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
IA	INDOOR AIR
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
152	RESIDENTIAL BUILDING CONSTRUCTION
1521	SINGLE-FAMILY HOUSING CONSTRUCTION
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0603
House Evaluation Program to Evaluate the Cost and Effectiveness of Radon Mitigation Methods
Ongoing
ORP/RD/MPQAB, Gene Fisher (202) 475-9605

The primary objectives of the House Evaluation Programs are to evaluate the cost and effectiveness of mitigation methods and provide hands-on training for State and private sector personnel in diagnosing and mitigating radon problems in houses. States select houses with elevated radon levels for participation and contact homeowners. EPA and State personnel diagnose the source(s) of the radon problem and offer the homeowner alternative mitigation schemes. The homeowner then chooses the mitigation schemes to be used and hires the contractor. After mitigation activities are completed, EPA conducts a post-mitigation evaluation to determine the cost and effectiveness of the mitigation efforts. Eleven States were involved in 1988. Currently such training is provided on request only.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
152	RESIDENTIAL BUILDING CONSTRUCTION
1521	SINGLE-FAMILY HOUSING CONSTRUCTION
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0604
Building Site Characterization
Ongoing
ORP/RD/PAB, Sharon Wirth (202) 475-9615

The objective of this research is to investigate the use of radon in soil gas and other methods to characterize the radon potential of building sites. The approach used involves the development of soil gas measurement methodology (with the USGS and a contractor), the development of a method to calibrate soil permeability measurement devices, conducting radioactivity measurements around existing homes, and conducting measurements at undeveloped sites. These projects are part of ORP's Land Evaluation Studies and New House Evaluation Program. Site characterization assistance has also been provided to EPA's Office of Research and Development. This project will assist in the development of land evaluation criteria as well as investigate the effectiveness of radon prevention construction.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
15	GENERAL BUILDING CONTRACTORS
152	RESIDENTIAL BUILDING CONSTRUCTION
1521	SINGLE-FAMILY HOUSING CONSTRUCTION
1522	RESIDENTIAL CONSTRUCTION, NEC
154	NONRESIDENTIAL BUILDING CONSTRUCTION
1542	NONRESIDENTIAL CONSTRUCTION, NEC

CL-BIB-0605
Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites
Ongoing
ORP/RD/MPQAB, Gene Fisher (202) 475-9605

The purpose of this project is to apply existing mitigation techniques to Superfund sites with high levels of radon in order to reduce human health risks in these areas. The project allows EPA to develop both a standing capability to respond to high risk radon problems at Superfund sites and additional information on diagnosis and mitigation activities from man-made contamination in different types of housing. House diagnostics and treatability studies as well as actual mitigation and follow-up activities are being conducted at homes in and around Superfund sites in Montclair, New Jersey, and Otawah, Illinois.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SA	SOURCE ASSESSMENT
10043-92-2	RADON
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0606
Radon Measurements in Schools: An Interim Report
Ongoing
ORP/RD/PAB, Anita Schmidt (202) 475-9605

Field studies are being conducted to measure concentrations of radon and radon progeny in schools. Data are also being acquired from States and school systems that have conducted independent measurements. These data will be used to develop interim guidance for radon measurements in schools in the fall of 1988. A final guidance document is expected to be completed in FY 89.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
82	EDUCATIONAL SERVICES
821	ELEMENTARY AND SECONDARY SCHOOLS
8211	ELEMENTARY AND SECONDARY SCHOOLS

CL-BIB-0607
National Assessment of Radon Gas (SARA Section 118(k))
Ongoing
ORP/RD/PAB, Frank Marcinowski (202) 245-4189

The objective of the program is to prepare a report to the Congress that will, to the extent possible, (a) describe locations in the U.S. where radon is found in structures where people live, work, or in schools; (b) assess the level present in these structures; (c) determine the level of radon gas and radon daughters which poses a health threat, and assess the health threat for structures identified in (a); (d) determine methods of reducing or eliminating the human health threat of radon gas and radon daughters; and (e) include guidance and public information materials on the findings or research of mitigating radon.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
IA	INDOOR AIR
10043-92-2	RADON
82	EDUCATIONAL SERVICES
821	ELEMENTARY AND SECONDARY SCHOOLS
8211	ELEMENTARY AND SECONDARY SCHOOLS
88	PRIVATE HOUSEHOLDS
881	PRIVATE HOUSEHOLDS
8811	PRIVATE HOUSEHOLDS

CL-BIB-0609
National Data Base of Indoor Radon Measurements
Ongoing
ORP/RD/PAB, Sharon Wirth (202) 245-3544

The objective of this project is to compile a comprehensive data base of indoor radon measurements. The data base will contain measurements from State/EPA surveys and Federal facilities, as well as measurements made by private vendors. The first phase of the project will include State/EPA data only. This data will help the EPA evaluate and compare radon levels in different types of buildings as well as determine which areas of the country have particularly acute radon problems.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0613
Monitoring of Dioxin at Dioxin Removal Sites
Ongoing
EPA Region VII, Mark Thomas (913) 236-3884

Dioxin emissions are being monitored at dioxin removal sites in Region VII using GFF/PUF and GC/MS technologies. The roadside and parking lot sites became contaminated by dioxin where waste oil, into which chemical waste from the manufacture of 2,4-D and 2,4,5-T herbicides had been mixed, was applied to the soil for dust control by an independent contractor.

CL-DIOXIN	DIOXINS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
93-76-5	TRICHLOROPHENOXYACETIC ACID,2,4,5-
94-75-7	DICHLOROPHENOXYACETICACID,2,4-

CL-BIB-0614
Evaluation of Longpass Fourier Transformation Infra-Red (FTIR) Spectroscopy Remote Sensing Technology for VOCs
Ongoing
EPA Region VII, Joe Arello (913) 236-3884

The Longpass Fourier Transformation Infra-Red (FTIR) Spectroscopy remote sensing technology for VOCs is being evaluated using a broad spectrum of VOCs from area and fugitive sources. Test sites include Superfund sites and RCRA treatment, storage, and disposal facilities.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0618
ATSDR Toxicological Profiles
Ongoing
ATSDR/RAB, Lisa Holman (404) 639-0616

ATSDR is preparing toxicological profiles to pinpoint health effects of chemicals found at Superfund sites. Each profile is required to include an examination, summary and interpretation of available toxicological information and epidemiologic evaluations. Relevant toxicological properties, levels of significant human exposure, and known significant health effects of the substances are included. The final toxicological profiles are provided through NTIS to the public. Information on 94 toxic substances is currently available in final form. Information on an additional 39 substances is expected to be available in final form by May 1992.

ATSDR	AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
HA	HEALTH ASSESSMENT
100-02-7	NITROPHENOL,P-
100-42-5	STYRENE
100-44-7	BENZYL CHLORIDE
10061-01-5	DICHLOROPROPENE,1,3-,1-,CIS-
10061-02-6	DICHLOROPROPENE,1,3-,TRANS-
1031-07-8	ENDOSULFAN SULFATE
106-44-5	CRESOL,P-
106-48-9	CHLOROPHENOL,P-
106-93-4	ETHYLENE DIBROMIDE
106-99-0	BUTADIENE,1,3-
107-92-6	BUTYRIC ACID
108-05-4	VINYL ACETATE
108-39-4	CRESOL,M-
108-60-1	CHLOROMETHYLETHYLETHER,BIS,2-,1-
109-06-8	METHYLPYRIDINE,2-
110-00-9	FURAN
110-86-1	PYRIDINE
115-29-7	ENDOSULFAN
120-83-2	DICHLOROPHENOL,2,4-
121-69-7	DIMETHYLANILINE,N,N-
123-86-4	BUTYLACETATE,N-
1319-77-3	CRESOL (ALL ISOMERS)
141-78-6	ETHYL ACETATE
16984-48-8	FLUORIDES
25322-20-7	TETRACHLOROETHANE
271-89-6	BENZOFURAN,2,3-
298-00-0	METHYL PARATHION
3268-87-9	OCTACHLORODIBENZO-P-DIOXIN
33213-65-9	BETA-ENDOSULFAN
39638-32-9	BIS(2-CHLOROISOPROPYL) ETHER
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
505-60-2	MUSTARD GAS
591-78-6	HEXANONE,2-
71-36-3	BUTYL ALCOHOL
74-83-9	METHYL BROMIDE
74-93-1	METHANETHIOL
7429-90-5	ALUMINUM
7439-96-5	MANGANESE
7440-28-0	THALLIUM, SOLUBLE COMPOUNDS, AS TL

CL-BIB-0618 (cont.)

7440-31-5	TIN, AS SN
7440-36-0	ANTIMONY
7440-39-3	BARIUM
7440-42-8	BORON
7440-48-4	COBALT
7440-62-2	VANADIUM
75-15-0	CARBON DISULFIDE
75-34-3	DICHLOROETHANE,1,1-
7647-01-0	HYDROGEN CHLORIDE
7664-38-2	PHOSPHORIC ACID
7664-39-3	HYDROGEN FLUORIDE
77-73-6	DICYCLOPENTADIENE
7782-41-4	FLUORINE
78-93-3	METHYL ETHYL KETONE
87-61-6	TRICHLOROBENZENE,1,2,3-
88-75-5	NITROPHENOL,O-
88-85-7	DINITROBUTYLPHENOL,2,4-,6-SEC-
95-48-7	CRESOL,O-
95-94-3	TETRACHLOROBENZENE,1,2,4,5-
959-98-8	ALPHA-ENDOSULFAN
96-12-8	DIBROMOCHLOROPROPANE,1,2,3-
96-18-4	TRICHLOROPROPANE,1,2,3-
98-82-8	CUMENE
99-65-0	DINITROBENZENE,1,3-
99-99-0	NITROTOLUENE,P-

CL-BIB-0623
Denver Brown Cloud Study #2
Ongoing; report due FY 91
EPA Region VIII, Mark Komp (303) 293-1768

This study is being conducted in the Denver metropolitan area. The objectives are to evaluate alternative fuels for in-use vehicles, to characterize air toxics emissions from mobile sources, to separate the impacts of particles from gas and diesel fuel vehicles, to develop emission factors for street-cleaning operations, and to develop methods for control of reentrained road dust. This project is being funded by the private sector with the EPA providing technical advice. The project is a follow-up of Brown Cloud Study #1, which identified the problem areas that are being addressed.

CL-DIESEL	DIESEL FUEL EMISSIONS
CL-PM	PARTICULATE MATTER
CT	CNTRL TECHNOLOGY DOC
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4959	SANITARY SERVICES, NEC
8006-61-9	GASOLINE

CL-BIB-0624
Study to Determine the Impact of Rush Hour Traffic on Formaldehyde Levels
Ongoing; complete FY 91
EPA Region VIII, Dale Wells (303) 293-1773

Formaldehyde levels during rush hour traffic are being monitored throughout the year in Colorado. During winter when air pollution problems are most severe, Colorado requires that a certain percentage of motor vehicle fuel be composed of oxygenated fuel such as methyl tertiary butyl ether (MTBE) or ethanol. These fuels reduce the levels of carbon monoxide emissions; however, they increase the levels of formaldehyde emissions. This study will provide a data base on the effects of oxygenated fuels on urban formaldehyde levels.

AM	AMBIENT MONITORING
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
1634-04-4	ETHER, TERT-BUTYL METHYL
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING
50-00-0	FORMALDEHYDE
630-08-0	CARBON MONOXIDE
64-17-5	ETHANOL

CL-BIB-0625
Comprehensive Toxic Air Pollutants Database
Ongoing
EPA Region V, Mary Onischak (312) 353-5954

The Southwestern Ohio Air Pollution Control Agency is developing a comprehensive toxic air pollutant database in Lotus and dBase III. Questionnaires were mailed to participating facilities in Cincinnati to gather emissions data. The PTPLU dispersion model will be used to evaluate the dispersion characteristics of these toxic emissions in Cincinnati. Two additional dispersion models, SCREEN and ISC, will also be used in this evaluation.

CL-VARIOUS	VARIOUS
DM	DISPERSION MODELING
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0626
Heavy Metal Sampling
Complete 9/91
EPA Region V, Mary Onischak (312) 353-5954

Ambient air was monitored in two different locations in Dayton, Ohio. The metals of interest are arsenic, cadmium, beryllium, chromium, lead, nickel, and zinc. The metals concentrations are being quantified and evaluated. The final report is projected to be complete by September 1991.

AM	AMBIENT MONITORING
EPA	ENVIRONMENTAL PROTECTION AGENCY
7439-92-1	LEAD POWDER
7440-02-0	NICKEL
7440-38-2	ARSENIC AND COMPOUNDS AS AS
7440-41-7	BERYLLIUM
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
7440-66-6	ZINC

CL-BIB-0627
Northern Wisconsin Boiler Evaluation
Complete 10/91
EPA Region V, Mary Onischak (312) 353-5954

A wood-fired boiler located in Birchwood, Wisconsin, was tested in April 1991 for this joint EPA/Wisconsin project. After the State of Wisconsin obtains the test results, they will develop the emission factors for 15 pollutants, including the three noncriteria pollutants, benzene, formaldehyde, and polycyclic organic matter.

CL-POM	POLYCYCLIC ORGANIC MATTER
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
50-00-0	FORMALDEHYDE
71-43-2	BENZENE

CL-BIB-0630
Dry Cleaning NESHAP
Started 11/89; complete 3/92
OAQPS/ESD/SDB, Shirley Tabler (919) 541-5256

This project will estimate the environmental, cost, and economic impacts for selected control technologies to reduce perchloroethylene and 1,1,1,-trichloroethane emissions from dry cleaning plants. Promulgation is projected for March 1992.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
127-18-4	TETRACHLOROETHYLENE
71-55-6	TRICHLOROETHANE,1,1,1-
72	PERSONAL SERVICES
721	LAUNDRY, CLEANING, & GARMENT SERVICES
7215	COIN-OPERATED LAUNDRIES AND CLEANING
7216	DRYCLEANING PLANTS, EXCEPT RUG
7218	INDUSTRIAL LAUNDERERS

CL-BIB-0631
Voluntary Reduction of Hazardous Air Pollutants
Started 12/89; Complete 11/90
OAQPS/ESD/CPB, Dave Beck (919) 541-5421

The revisions in the Clean Air Act will allow for industry exemptions for certain NESHAP's if they achieve 90% reduction of hazardous air pollutant emissions. EPA will write these provisions for proposal in November 1990.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP

CL-BIB-0632
Staten Island Citizen Odor Episode Monitoring Network
Started 10/89; complete FY 91
EPA Region II, Kevin Goohs (212) 264-2517

Six residents on Staten Island are using the canister method to sample outdoor air during odorous episodes. They have been trained by EPA in proper sampling procedures. EPA will compare the results of this study to the full Staten Island project to see if VOC concentrations increase during odorous episodes. A final report is being prepared and will be available by September 30, 1991.

AM	AMBIENT MONITORING
CL-ODOR	ODORS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0633
Comprehensive Revision to Asbestos NESHAP Rule
Started 2/90; Ongoing
EPA, OAQPS/ESD/SDB, Sims Roy (919) 541-5263

EPA is reevaluating the asbestos regulation to require the use of best available control technology (BACT) to reduce asbestos emissions under the Clean Air Act. The NESHAP proposal is expected in April 1992.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
1332-21-4	ASBESTOS
14	NONMETALLIC MINERALS, EXCEPT FUELS
149	MISCELLANEOUS NONMETALLIC MINERALS
1499	MISCELLANEOUS NONMETALLIC MINERALS
26	PAPER AND ALLIED PRODUCTS
262	PAPER MILLS
2621	PAPER MILLS
32	STONE, CLAY, AND GLASS PRODUCTS
329	MISC. NONMETALLIC MINERAL PRODUCTS
3292	ASBESTOS PRODUCTS

CL-BIB-0634
Air Toxics Evaluation of A Municipal Waste Combustor in Bellingham, Washington
Started 12/88
Region X, Elizabeth Waddell (206) 553-8578

Results of stack testing and ambient monitoring conducted on an existing facility are available for which metals, PAHs, and dioxins were screened. The risk assessment is on long-term hold.

AM	AMBIENT MONITORING
CL-DIOXIN	DIOXINS
CL-METAL	METALLIC COMPOUNDS
CL-PAH	POLYCYCLIC AROMATIC HYDROCARBONS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0637
Michigan Compliance Prioritization (Inspection Targeting System)
Ongoing; started 1985
EPA Region V, Xuan-Mai Tran (312) 886-6043

A computerized system has been developed for prioritizing compliance activities for all pollution sources in the State of Michigan. The computer will rank these sources to prioritize inspections based on compliance history, emissions, source type, etc. The system, developed as part of a national project, ranks the sources into two separate lists, SIP and NSPS or NESHAP and toxics. The State of Michigan is developing an algorithm for ranking the sources by combining the two lists. Equations have been proposed to relate the different types of pollutants. Improvements are being made and will be submitted to the Michigan Department of Natural Resources (MDNR). MDNR will set up a preliminary ranking of the sources and compare this to available lists to evaluate the ranking. A link between the targeting and air compliance data bases is planned. When completed, the additional improvements will be available nationwide.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE

CL-BIB-0638
Minnesota Urban Air Toxics Assessment
Ongoing; complete 9/91
EPA Region V, Mary Onischak (312) 353-5954

An air toxics emissions inventory for point, area, and mobile sources for Minnesota is being compiled. Health risks in selected geographical areas will then be assessed through computer modeling. Data and the report should be available on July 1, 1991. The State of Minnesota is conducting quality assurance to verify the results. The final report is projected to be complete by September 1991.

CL-VARIOUS	VARIOUS
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0639
Minnesota Waferboard Emissions Study
Started 3/90; report due 6/91
EPA Region V, Mary Onischak (312) 353-5954

Chemical species and emissions rates will be determined for several waferboard facilities in Minnesota. Human health impacts and risks will be determined along with ambient air emission levels. Control strategies to reduce emissions will also be addressed. The draft report is complete and being reviewed; the final report is projected to be complete by June 1991.

AM	AMBIENT MONITORING
CL-VARIOUS	VARIOUS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT
SA	SOURCE ASSESSMENT
24	LUMBER AND WOOD PRODUCTS
249	MISCELLANEOUS WOOD PRODUCTS
2493	RECONSTITUTED WOOD PRODUCTS

CL-BIB-0640
Volatile Organic Compounds and Aldehydes in Indoor Air
Ongoing
AREAL/MRB, Bob Stevens (919) 541-3154

Indoor and outdoor concentrations of VOCs and aldehydes were quantified and compared among ten different residences in Boise, Idaho during the winter of 1987. The objective was to gain a better understanding of the relationship between indoor and outdoor pollutant concentrations. The concentration of VOCs between outdoor and indoor air was equal. The aldehydes concentrations greatly increased among indoor air samples. The data were presented at the Indoor Air International Conference in Toronto during the summer of 1990.

AM	AMBIENT MONITORING
CL-ALDEHYD	ALDEHYDES
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0641
School Mitigation Demonstrations Program
Ongoing; started 5/89
ORD/AEERL, Kelly Leovic (919) 541-2824

The objective of the project is to design and install radon mitigation techniques in schools, and determine a relationship between physical characteristics of a building and the influence on radon levels.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
82	EDUCATIONAL SERVICES
821	ELEMENTARY AND SECONDARY SCHOOLS
8211	ELEMENTARY AND SECONDARY SCHOOLS

CL-BIB-0650
Sampling Methods for Semi-VOCs in Indoor Air
Ongoing
ORD/OMMSQA/AREAL, Nancy Wilson (919) 541-4723

The purpose of this project is to design, develop, and evaluate an air sampler for semivolatile organic compounds that is suitable in microenvironments. The prototype samplers and field evaluations are complete. Journal articles will be published.

CL-IAP	INDOOR AIR POLLUTANTS
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
SS	SOURCE SAMPLING

CL-BIB-0651
Mutagenicity of Individual Indoor Air Mixtures
Ongoing
ORD/OHR/HERL, Larry Claxton (919) 541-2329

The purpose of this project is to provide insight into the possible carcinogenicity of indoor air pollutants and pollutant mixtures commonly encountered in real-life situations.

CL-CARCIN	CARCINOGENS
CL-IAP	INDOOR AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
IA	INDOOR AIR

CL-BIB-0653
Evaluation of Dense Gas Simulation Models
Ongoing; complete 6/91
OAQPS/TSD/SRAB, Joe Touma (919) 541-5381

EPA has an ongoing program to evaluate the performance of air quality simulation models using statistical performance measures. Models for toxic pollutant releases into air represent a broad class of models for which little evaluation work has been performed. Using previously archived air toxics data bases, several models are being evaluated. This will aid State and local air pollution control agencies in determining the best models for use in dispersion modeling. Models include those that are in the public domain as well as those that are proprietary. A publication is in clearance and should be available June 1991.

DM	DISPERSION MODELING
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0657
Development of a Most-Exposed Population Approach
Ongoing
OHEA/ECAO-CIN, Norman Kowal (513) 569-7584
Waste Management Operations

This project is designed to develop an approach to compare risk assessments or waste management operations, with immediate application to sewage sludge management. The current Most-Exposed Individual (MEI) approach is believed to result in unequal regulatory treatment among the various management operations. The Most-Exposed Population (MEP) approach attempts to identify equally highly exposed population segments in the various practices and to use these as the basis for risk assessment.

EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0659
Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions
Ongoing
OHEA/ECAO-CIN, Randy Bruins (513) 569-7539

This methodology document seeks to provide risk assessors with the guidance necessary to estimate the health risks that result from exposure to toxic pollutants in combustor emissions by pathways other than inhalation. Whereas practices for assessing human health risks from inhalation of pollutant emissions are well established, this methodology enables assessors to make estimates of the indirect human exposure to, and the health risks that can result from, the migration of emitted pollutants to soil, vegetation, and water bodies. The interim final report was published as EPA-600/6-90-003, NTIS PB90-187055.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0660
Health Assessment for Tetrachloroethylene Cancer Update
Ongoing; complete late '91
OHEA/RDTB/HHAG, Jean Parker (202) 383-5898

In February 1991, OHEA published a summary of the 1985 health assessment document and 1986 addendum on tetrachloroethylene and a response to relevant issues and comments received. It was entitled "Response to Issues and Data Submissions on Tetrachloroethylene (Perchloroethylene)" (EPA-600/6-91-002a) and was the Science Advisory Board (SAB) review draft. A final document will be prepared and is scheduled to be available by late 1991.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
127-18-4	TETRACHLOROETHYLENE

CL-BIB-0662
Building Owners' and Managers' Guide to Preventing and Resolving Indoor Air Quality Problems
Ongoing
OAIAP/IAD, Betsy Agle (202) 382-7753 (703) 308-8377

This guidance document will identify methods to diagnose, correct, and prevent indoor air problems from occurring in existing large, non-industrial buildings.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0664
Test Method Development for Emissions from Organic Solvent Cleaners
Ongoing
OAQPS/TSD/EMB, Candace Sorrell (919) 541-1064

Methods for determining emissions from solvent cleaners (degreasing machines) are being developed for use in development of the organic solvent cleaners NESHAP.

CL-SOLVENT	SOLVENTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
SS	SOURCE SAMPLING

CL-BIB-0665
Characterization of Air Toxics Emissions and Deposition in the Great Lakes Area
Ongoing
AREAL, Dale Pahl (919) 541-1851

AREAL, in conjunction with the Great Lakes National Program Office and the Integrated Atmospheric Deposition Network (IADN), is investigating sources of air emissions and ambient concentrations of air toxics and nutrient compounds in the Great Lakes area. Deposition rates of the compounds into the lakes are being estimated by analyses of ambient concentrations, in conjunction with ancillary information needed for modeling. Additional measurements (needed for source apportionment) will be taken to allow for allocation of air quality concentrations to the contributing sources or source categories.

AM	AMBIENT MONITORING
CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT

CL-BIB-0666
Air Emissions From Dredging
Ongoing
ORD/OEETD/RREL-CIN, Dennis Timberlake (513) 569-7547

This project is investigating the types of dredging currently being done at RCRA closure sites and is characterizing the dredged materials. Preliminary work is being conducted this year. Field testing for VOC's and semi-VOC's at a worst-case site is scheduled for next year.

CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0668
Test Method Development for VOCs in Consumer Products
Ongoing
AEERL/GECD, Mike Kosusko (919) 541-2734

This project will develop a draft research plan for determining VOC emissions from several consumer product types including aerosols, organic liquids, organic solids, and solids (pastes and creams) containing residual organics. Potential test methods will be identified and the types of measurements required will be clarified.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT

CL-BIB-0672
Chemical Substitutes for Chlorofluorocarbons
Started 8/86; complete 9/91
AEERL/GECD/SOPB, Dean Smith (919) 541-2708

Chlorofluorocarbons (CFCs) are implicated in depleting ozone in the stratosphere. The production of CFC's will be eliminated by the year 2000. Alternative compounds are being considered by industry; however, these chemicals have yet to completely pass toxicity and safety testing. This project is investigating backup CFC and halon substitutes in case the compounds industry has selected to use as refrigerants, foam blowing agents, solvents, and compounds in fire extinguishers fail to pass testing. To date, 33 new compounds have been synthesized and several of their thermophysical properties have been either empirically measured or calculated. These compounds fall into two major categories: 3- and 4-carbon HCFCs and HFCs and perfluoro- or hydrofluoro-ethers. Atmospheric reactivities of the compounds are being investigated, as well as flammabilities and chemical stabilities. Preliminary investigations of acute toxicity of these compounds are being conducted.

CL-CFC	CHLOROFLUOROCARBONS
CL-ETHERS	ETHERS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0673
Organic Solvent Cleaners NESHAP
Started 10/86; complete FY 93
OAQPS/ESD/CPB, Dave Beck (919) 541-5421

During the course of this project, several regulatory alternatives will be evaluated to reduce the emissions of hazardous air pollutants from new and existing organic solvent cleaners. The alternatives will be combinations of equipment and operating requirements and will be evaluated on the basis of cost, emission reduction potential, and other environmental impacts. As part of the development process, EPA is developing a standardized test method for measuring losses from organic solvent cleaners.

CL-ORGANIC	ORGANIC COMPOUNDS
CL-SOLVENT	SOLVENTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
127-18-4	TETRACHLOROETHYLENE
71-55-6	TRICHLOROETHANE,1,1,1-
75-09-2	METHYLENE CHLORIDE
79-01-6	TRICHLOROETHYLENE

CL-BIB-0674
Inhalation Study on Hydrogen Fluoride
Ongoing; started 10/89
OSWER/OSW/CAD, Monica Barron (202) 382-6977

The objectives of this study are to evaluate the potential toxicity of inhaled hydrogen fluoride (HF) in rats following repeated exposures (ten 6-hour exposures over 14 days) and to select HF concentrations for a 90-day subchronic inhalation toxicity study. This is being done to develop a systemic reference dose (RfD) and to assess short-term exposure methodologies. Data for risk assessments typically involve daily chronic exposure over many years. EPA is trying to develop a methodology for short-term exposures to evaluate risk of releases of hazardous chemicals on an acute basis such as in terms of an hour per day exposure.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
RA	RISK ASSESSMENT
TT	TOXICITY TESTING
49	ELECTRIC, GAS, AND SANITARY SERVICES
491	ELECTRIC SERVICES
4911	ELECTRIC SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
7664-39-3	HYDROGEN FLUORIDE

CL-BIB-0675
Inhalation Study on Hydrogen Bromide
Ongoing; started 10/89
OSWER/OSW/CAD, Monica Barron (202) 382-6977

A 6-hour acute exposure of rats to hydrogen bromide (HBr) was conducted to examine the short-term effects of HBr as a component of incinerator emissions. This is being done to develop a systemic reference dose (RfD) and to assess short-term exposure methodologies. Data for risk assessments typically involve daily chronic exposure over many years. EPA is trying to develop a methodology for short-term exposures to evaluate the risk of releases of hazardous chemicals on an acute basis such as in terms of an hour-per-day exposure.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
RA	RISK ASSESSMENT
TT	TOXICITY TESTING
10035-10-6	HYDROGEN BROMIDE
49	ELECTRIC, GAS, AND SANITARY SERVICES
491	ELECTRIC SERVICES
4911	ELECTRIC SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0676
Health Advisories for 28 Chemicals in Drinking Water
Ongoing
OW/OST/HECD/HRAB, Bob Cantilli (202) 382-5546

Health advisories are being compiled for 28 man-made and naturally occurring compounds that appear in drinking water that include disinfectants, disinfection by-products (DBPs), pesticides and inorganics. Disinfectants and DBPs result from water treatment use, and pesticides result from intentional use and runoff. The health advisories will contain information on chemical properties, occurrence, environmental fate, pharmacokinetics, health effects in humans and animals, analytical methods, water treatment technologies, and research needs. These volatile organic compounds result from effluent discharges into surface water and possibly groundwater. Health advisories for 11 compounds have been completed and the remainder are projected to be completed by December 1991.

CL-INORGAN	INORGANIC COMPOUNDS
CL-PEST	PESTICIDES
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
494	WATER SUPPLY
4941	WATER SUPPLY

CL-BIB-0677
Health Advisory for 15 Unregulated Volatile Organic Compounds
Ongoing; started 10/86
OW/OST/HECD/HRAB, Bob Cantilli (202) 382-5546

These 15 health advisories contain information on chemical properties, occurrence, environmental fate, pharmacokinetics, health effects in humans and animals, analytical methods, water treatment technologies, and research needs. These industrial volatile organic compounds result from effluent discharges into surface waters and possibly groundwater that public water suppliers must monitor but which are not regulated under Section 1445 of the Safe Drinking Water Act. For each compound, concentrations of the chemical are given that would pose adverse health risk for different durations of exposure: 1 day, 10 days, up to 7 years, and lifetime. These health advisories are available from NTIS (PB90-259821).

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
106-43-4	CHLOROTOLUENE,P-
108-70-3	TRICHLOROBENZENE,1,3,5-
120-82-1	TRICHLOROBENZENE,1,2,4-
39638-32-9	BIS(2-CHLOROISOPROPYL) ETHER
49	ELECTRIC, GAS, AND SANITARY SERVICES
494	WATER SUPPLY
4941	WATER SUPPLY
630-20-6	TETRACHLOROETHANE,1,1,1,2-
74-83-9	METHYL BROMIDE
74-87-3	METHYL CHLORIDE
74-97-5	BROMOCHLOROMETHANE
75-69-4	FLUOROTRICHLOROMETHANE
75-71-8	DICHLORODIFLUOROMETHANE
79-00-5	TRICHLOROETHANE,1,1,2-
87-68-3	HEXACHLORO-1,3-BUTADIENE
91-20-3	NAPHTHALENE
95-49-8	CHLOROTOLUENE,O-
96-18-4	TRICHLOROPROPANE,1,2,3-

CL-BIB-0678
Ambient Monitoring of Polar Volatile Organics and Semivolatile Phase-Distributed Organics
Ongoing; started 3/90
AREAL/EARD/EARB, Gary Evans (919) 541-3124

This is a field demonstration project to be conducted at Toxic Air Monitoring Systems (TAMS) sites in Boston and Houston. The 24-hour integrated samples will be collected on a 12-day cycle. Two new sets of compounds will be measured, ambient levels will be documented, and appropriate methodology will be determined. Appropriate procedures will be developed for measurement, calibration, and quality assurance for 18 polar volatile organic compounds (PVOCs) and 19 semivolatile organic compounds (SVOCs), including their phase distribution. Canister-based technology will be independent for the PVOCs, and a denuder/solid adsorbent system will be used for the SVOCs.

AM	AMBIENT MONITORING
CL-SVOC	SEMIVOLATILE ORGANIC COMPOUNDS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0679
Ethylene Oxide Commercial Sterlization/Fumigation NESHAP
Started 1983; complete 10/92
OAQPS/ESD/CPB, Diane Markwordt (919) 541-0837

This project involves the regulation of ethylene oxides primarily from commercial (not hospital) sterilization facilities. The National Emission Standard for Hazardous Air Pollutant (NESHAP) is scheduled for promulgation in October 1992. The regulation is based on the use of scrubbers and catalytic oxidizers to achieve a 99% reduction on a continuous basis.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
75-21-8	ETHYLENE OXIDE

CL-BIB-0680
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations NSPS
Ongoing; started 1990
OAQPS/ESD/SDB, Debbie Stackhouse (919) 541-5258

This project involves the regulation of volatile organic compounds (VOC's) from SOCMI distillation operations. New Source Performance Standards (NSPS) were promulgated June 29, 1990. The regulations are based on the use of combustion controls to achieve a 98 weight-percent reduction or to reduce emissions to 20 ppm, whichever is less stringent. There is a cost-effectiveness cutoff above which a source would not be required to meet these emission limits.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
NSPS	NEW SRC PRFRMNCE STD
28	CHEMICALS AND ALLIED PRODUCTS
286	INDUSTRIAL ORGANIC CHEMICALS

CL-BIB-0681
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes NSPS
Started 1983; complete 12/91
OAQPS/ESD/SDB, Debbie Stackhouse (919) 541-5258

This project involves the regulation of volatile organic compounds (VOC's) from SOCMI reactor processes. New Source Performance Standards (NSPS) are scheduled for promulgation December 1991. The regulations are based on the use of combustion controls to achieve a 98 weight-percent reduction or to reduce emissions to 20 ppm, whichever is less stringent. There is a cost-effectiveness cutoff above which a source would not be required to meet these emissions limits.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
28	CHEMICALS AND ALLIED PRODUCTS
286	INDUSTRIAL ORGANIC CHEMICALS

CL-BIB-0682
Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Processes NSPS
Ongoing; started 1976
OAQPS/ESD/SDB, Debbie Stackhouse (919) 541-5258

The project involves the regulation of volatile organic compounds (VOC's) from SOCMI air oxidation processes. New Source Performance Standards (NSPS) were promulgated June 29, 1990. The regulations are based on the use of combustion controls to achieve a 98 percent-weight reduction or to reduce emissions to 20 ppm, whichever is less stringent. There is a cost-effectiveness cutoff above which a source would not be required to meet these emission limits.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
28	CHEMICALS AND ALLIED PRODUCTS
286	INDUSTRIAL ORGANIC CHEMICALS

CL-BIB-0683
Municipal Solid Waste Landfill NSPS
Ongoing
OAQPS/ESD/SDB, Alice Chow (919) 541-5626

This project involves the development of air emissions regulations for the control of air pollutants emitted with municipal solid waste (MSW) landfill gas that result from the biological decomposition of waste deposited in landfills. New Source Performance Standards (NSPS) are scheduled for proposal May 1991. The proposed regulations are based on the installation of gas-collection and control systems at those MSW landfills emitting 150 Mg/yr nonmethane organic compounds (NMOCs). The BID has been prepared to support the regulation and will be available at the time of the proposal. The Regulatory Impact Analysis of Air Pollutant Emission Standards and Guidelines for Municipal Solid Waste Landfills is available upon request.

CL-CHC	CHLORINATED HYDROCARBONS
CL-NMHC	NON-METHANE HYDROCARBONS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
71-43-2	BENZENE
74-82-8	METHANE
75-01-4	VINYL CHLORIDE

CL-BIB-0686
Kanawha Valley Health Studies
Started 10/86; Complete 9/91
ORD/OHR/HERL, Carl Hayes (919) 541-7739

The goal of this project is to assess possible adverse health consequences of chemical manufacturing activities in the Kanawha Valley of West Virginia, which contains one of the largest concentrations of chemical manufacturing activity in the United States. Public concern about danger to health and safety posed by these industries prompted this research program. The work is being conducted in three phases. In Phase I, a 12-month environmental monitoring study was done to determine levels and patterns of selected potentially hazardous pollutants. Concurrently, a series of workshops was held with appropriate community representative and scientific defensible and responsible to local concerns. Phase II was a cross-sectional survey of school children to determine prevalence and patterns of disease and symptoms. Phase III now under way, includes a study of temporal relationships between symptoms and pollutants and clinical studies that involve evaluating data in the Cancer Registry.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
ES	EPIDEMIOLOGY STUDY
SA	SOURCE ASSESSMENT
28	CHEMICALS AND ALLIED PRODUCTS

CL-BIB-0687
Atmospheric Sampling Source for Real-Time Measurement of Polar VOCs
Ongoing
AREAL/MRB/MMRS, Joachim Pleil (919) 541-4680

Previous research has shown that sample collection and GC/MS analysis of polar VOCs at trace levels is fraught with difficulties. The problems mostly arise from the adsorption of the compounds of metal surfaces or from their chemical reactivity. Tandem mass spectrometry (MS/MS) offers an attractive alternative approach to this problem. Besides obviating the need for prior sample collection, preconcentration, and chromatographic separation, it provides real-time analysis of target compounds with high sensitivity and selectivity. The purpose of this project is to construct an atmospheric sampling glow discharge ionization (ASGDI) source, attach it to an ion trap mass spectrometer (ITMS), and optimize the combined system in the MS/MS mode for the real-time analysis of polar VOCs in ambient air.

AM	AMBIENT MONITORING
CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING

CL-BIB-0688
Environmental and Health Assessment of Exposure to Alachlor-enhancement
Started FY 90; complete FY 92
NIOSH/DSHEFS/IWSB, Wayne Sanderson (513) 841-4203

Alachlor, one of the most commonly used herbicides in the United States, has recently been shown to be carcinogenic in animal studies. This study will determine levels of exposure to alachlor in agricultural applicators, using environmental and biological measurements.

EA	EXPOSURE ASSESSMENT
HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
15972-60-8	ALACHLOR

CL-BIB-0689
Equipment Leaks Regulatory Negotiation
Ongoing; started 9/89; complete 11/91
OAQPS/ESD/SDB, Rick Colyer (919) 541-5262

On April 25, 1989, EPA announced its intention to form an advisory committee to negotiate a new approach for control of volatile hazardous air pollutants (VHAP) leaks. The committee consisted of EPA, industry trade associations, state regulatory agencies, and environmental groups. The objective of the committee was to develop a new standard for control of toxic organic emissions from equipment leaks at hazardous organic NESHAP (HON) source categories. The committee reached agreement in late 1990 and published a draft rule in the Federal Register March 6, 1991 (56 FR 9315). Standards will be proposed in late November 1991.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
28	CHEMICALS AND ALLIED PRODUCTS
286	INDUSTRIAL ORGANIC CHEMICALS

CL-BIB-0690
Hazard Ranking System
Ongoing; started 7/85
OSWER/OERR/HSED, Suzanne Wells (202) 475-9701

The hazard ranking system project is evaluating the relative risks from hazardous substance releases and establishing priorities for EPA and State responses under the Superfund program. The four major components addressed are air toxics, soils, groundwater and surface water. The final rule was published in the Federal Register December 14, 1990. Additional guidance will be published in fall 1991 and periodically thereafter.

EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0691
Low Temperature Formation of Dioxins and Furans from Municipal Waste Combustion
Ongoing
AEERL/PCD/CRB, Paul Lemieux (919) 541-0962

The project is investigating the reactions occurring on fly ash from the cold end of combustion which may lead to dioxin and furan emissions.

CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0692
Surrogate Performance Indicators for Hazardous Waste Incinerators
Ongoing
AEERL/PCD/CRB, Paul Lemieux (919) 541-0962

The project team is developing a simple performance indicator calculation to estimate the degree of combustion within a hazardous waste incinerator. This calculation will allow operators to estimate the combustion efficiency by combining easily obtained measurements of CO, hydrocarbons, and soot, into a single numerical indicator. The project is a cooperative effort with the Universities of Arizona and Arkansas.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0693
Products of Incomplete Combustion in a Rotary Kiln Simulator
Ongoing
AEERL/PCD/CRB, Paul Lemieux (919) 541-0962

The project examines the emission products of incomplete combustion from simulated waste incineration in a batch mode in a rotary kiln. The project is currently examining the role of the after burner in contributing to organics emissions. This project is a cooperative effort with the Universities of Arizona and Arkansas.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0694
The Use of a Dilution Sampling System to Examine the Health Effects of Ambient Air and Temperatures on Municipal Waste Combustion Emissions
Ongoing
AEERL/PCD/CRB, Paul Lemieux (919) 541-0962

Inhouse and field samples from municipal waste combustor stacks will be used in a dilution sampling system to examine what happens to emissions as they mix with ambient air and cool to ambient temperatures. Analyses of the species formed are also planned. Samples have also been taken from the rotary kiln simulator to estimate organic emissions.

CL-ORGANIC	ORGANIC COMPOUNDS
CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0695
Long Term Radon Monitoring in 12 Maryland Houses Having EPA Installed Radon Reduction Systems
Ongoing; started 9/89
AEERL/PCD/RMB, Bruce Henschel (919) 541-4112

Alpha-track detectors (ATDs) were deployed in September 1989 to obtain a one-year post-mitigation radon measurement in 12 houses in Maryland where EPA had installed experimental radon reduction systems during the winter of 1988-89. These detectors were retrieved in September 1990 and the results analyzed. New detectors were deployed in September 1990 for retrieval in September 1991.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0696
Entry and Control of Radon 222 and Thoron in New Mexico Residences
Started 12/89; complete 7/91
AEERL/PCD/RMB, Bruce Henschel (919) 541-4112

Radon mitigation systems have been installed and are being tested in eight New Mexico houses. Six of these houses are slab on grade, with packed sand or clay underneath the slab and no sub-slab aggregate. The other two have inaccessible crawl spaces. Testing is near completion.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0698
Radiation Curable Coatings as a Control Option for VOCs from Coatings
Ongoing
AEERL/GECD/OCB, Charles Darvin (919) 541-7633

The purpose of this study is to determine if various radiation curable coatings can serve as a viable option for VOC control and for which industries they would apply. The following will be addressed: identify the type of industries using radiation curable coatings technology; identify and define the level of all toxic and volatile emissions; and identify engineering and technical hurdles to overcome to broaden the application of radiation curable technologies. A draft report is in progress.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0701
Emissions from Combustion of Cabinet and Formica Countertop Scrap
Ongoing
AEERL/GECD/OCB, Robert McCrillis (919) 541-2733

The State of Vermont has asked EPA for assistance in identifying the quantity and nature of emissions from combustion devices burning waste generated during the manufacture of typical residential/ commercial cabinetwork and countertops including formica coatings.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
24	LUMBER AND WOOD PRODUCTS
243	MILLWORK, PLYWOOD & STRUCTURAL MEMBERS
2434	WOOD KITCHEN CABINETS
25	FURNITURE AND FIXTURES
252	OFFICE FURNITURE

CL-BIB-0702
Continuous Release Reduced Reporting Requirement
Ongoing
OSWER/OSW/OERR/ERD, Hubert Watters (202) 382-2463

This project has moved from the rulemaking phase to the implementation phase. Under Section 103(a) of CERCLA, the person in charge of a facility or vessel is required to report each time a reportable quantity or more of a listed hazardous substance is released into the environment. Under Section 103(f)(2), releases that are "continuous" and "stable in quantity or rate" may be reported less often. The Continuous Release Reduced Reporting requirement regulation clarifies the reporting requirements of Section 103(f)(2). In general, an initial report is required, followed by a follow-up report one year later. Annual assessments are required to ensure the accuracy of the one-time follow-up report.

EPA	ENVIRONMENTAL PROTECTION AGENCY
ER	EMERGENCY RESPONSE
SA	SOURCE ASSESSMENT

CL-BIB-0703
Corona Destruction as an Air Toxics Control Option
Ongoing
AEERL/GECD/OCB, Geddes Ramsey (919) 541-7963

A novel technology called corona destruction will be evaluated as an alternative control method for air toxics. The method which involves a very high electric field across a packed bed has been tested with very promising results. The initial tests involved a small reactor on the order of 1 liter/minute. Future plans involve further tests of a bench scale set-up with different air toxics, different reactors, and different packed beds. A larger scale test is beginning. A bench scale test with pulse reactor is ongoing.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0705
The Effect of Wood Finishing Products on Indoor Air Quality
Ongoing
AEERL/CIAD/IAB, Bruce Tichenor (919) 541-2991

The use of stains, polyurethane finishes, and waxes on interior surfaces can cause elevated levels of vapor phase organics indoors. Studies were conducted in an Indoor Air Quality test house to determine the magnitude and temporal history of indoor concentrations of organic compounds due to the use of these products.

CL-IAP	INDOOR AIR POLLUTANTS
CL-ORGANIC	ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0706
Development of a Chromium Sampling Method
Ongoing
OAQPS/TSD/EMB, Frank Clay (919) 541-5236

The Emission Measurement Branch has developed a sampling train for chromium emissions that will provide accurate data at an affordable cost. The entire train can be made by the plating facility from inexpensive components that can be purchased locally. Operation of the train is simple enough that an electroplater can obtain samples using plant personnel. The cost to build the train is approximately $600.00 and the cost of three runs is about $350.00, including analysis. Initial data indicate that this train is as accurate as the conventional one.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
18540-29-9	CHROMIUM (VI) COMPOUNDS
34	FABRICATED METAL PRODUCTS
347	METAL SERVICES, NEC
3471	PLATING AND POLISHING
7440-47-3	CHROMIUM

CL-BIB-0707
Development of a Source Test Method for Hexavalent Chromium
Ongoing
AREAL/QAD, Rodney Midgett (919) 541-3527

A sampling and analytical method for detection of hexavalent chromium in emission samples has been developed. The analytical method is capable of measuring chromium at levels as low as the parts per trillion range using ion chromatography with a post column reaction. Low level analysis is necessary because the concentration of hexavalent chromium in the emissions of these sources is generally low; however, the total mass emissions of the hexavalent chromium may be significant due to large volumetric flowrates.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
18540-29-9	CHROMIUM (VI) COMPOUNDS

CL-BIB-0708
Hazardous Organic NESHAP
Ongoing
OAQPS/ESD/SDB, Jan Meyer (919) 541-5254

The EPA Office of Air Quality Planning and Standards is currently developing regulations to cover emissions of organic hazardous air pollutants from synthetic organic chemical manufacturing industries. The resulting emission standards are expected to be among the first regulations proposed and promulgated under the revised Clean Air Act. The standards will control emissions from process vents, storage, transfer operations and wastewater. The regulations will also include standards for fugitive equipment leaks which are being developed through a regulatory negotiation process involving EPA, industry, environmental groups, and state and local governments. The equipment leak standard will also apply to production of styrene-butadiene rubber, polybutadiene, chlorine, pesticides, and pharmaceuticals as well as use of butadiene and chlorinated hydrocarbons. The HON regulations are planned to be proposed by fall 1991.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
28	CHEMICALS AND ALLIED PRODUCTS

CL-BIB-0709
Supplements to the Proposed Rules for Boilers, Industrial Furnaces, and Incinerators that Use Hazardous Waste as Fuel
Ongoing
OSWER/OSW/WMD/WTB, Shira Garg (703) 308-8460

On February 21, 1991, OSW promulgated rules for disposal of hazardous wastes in boilers and industrial furnaces (BIF's). Based on questions raised during a series of workshops presented to regulatory agency personnel and the public, OSW is preparing several guidance documents to further clarify the rule. A technical amendments package to revise the promulgated rule is also being prepared. These rules limit emissions of metals, chlorine, and organics from BIF's burning hazardous waste. The associated performance levels are comparable to those required for hazardous waste incinerators. Assistance with implementation of the rules will continue.

CL-HAZWAST	HAZARDOUS WASTES
CL-METAL	METALLIC COMPOUNDS
CL-ORGANIC	ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
7782-50-5	CHLORINE

CL-BIB-0710
Ambient Modeling of Toxic Release Inventory (TRI) Air Emissions Data
Ongoing; report in progress
OTS/EED, Lynn Delpire (202) 382-5109

This project is modeling stack and fugitive air emissions data from the Toxic Release Inventory (TRI) data base using the Industrial Source Complex Longterm (ISDLT) Model. The estimated ambient concentrations are integrated with population data from the Census Bureau to estimate exposures. Crude risk levels are being calculated for chemicals that have quantitative measures of toxicity. So far, 31 TRI chemicals have been modeled.

CL-VARIOUS	VARIOUS
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0711
Characterization of Emissions from the Simulated Open Burning of Automobile Shredder Fluff
Ongoing
AEERL/PCD/CRB, Paul Lemieux (919) 541-0962

The project will analyze the emissions and species of pollutants from the burning of automobile shredder fluff. Shredder fluff is the non-metallic material of the car such as seat cushions and plastics which is blown out by cyclones during the shredding process. The project was instigated by a shredder fluff fire in Virginia, where substantial trace organic emissions were measured.

CL-ORGANIC	ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT

CL-BIB-0712
Volatile Emissions from Stabilization/Solidification of Hazardous Waste
Completed
ORD/OEETD/RREL/CIN, Douglas Grosse (513) 569-7844

DESCRIPTION:
The purpose of this research project is to identify and quantify the release of volatile and semi-volatile organics resulting from stabilization operations performed at commercial hazardous waste facilities. This study included a field test at a representative commercial stabilization operation, whereby a material balance was used to calculate emission factors for these air releases. Work is to be completed this fiscal year.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0713
School Evaluation Program to Select Radon Mitigation Strategies
Ongoing
ORP/RD/MPQAB, Gene Fisher (202) 475-9605

DESCRIPTION:
The School Evaluation Program (SEP) is a technical assistance program whose goal is to develop school diagnostic procedures that will enable school officials and private sector contractors to choose the most effective radon mitigation strategy for their school. Twenty six schools were evaluated in FY 90. The evaluation consists of slab and HVAC characterization with a written report on the optimum mitigation method. The SEP in FY 91 will include six more schools. Demonstrations of mitigation strategies are anticipated on two SEP schools.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0714
Evaluation of Two Innovative Spray Painting Systems
Ongoing
EPA/AEERL/OCB, Charles Darvin (919) 541-7633

DESCRIPTION:
Two spray gun technologies were evaluated. Each system has the capability of spraying very high solids coatings in excess of 65% solids by volume. The N2 technology utilizes high pressure N2 gas at 1000 psi, to eject paint from conventional spray guns. The second system, the Unicarb TM System, utilizes super critical CO2 which acts as a solvent. The CO2 would replace conventional organic solvents to permit spraying of the high solids coating. Both technologies promise to permit the reduction of solvent content in coatings.

CL-SOLVENT	SOLVENTS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0715
Characterization of Emissions from Combustion of Waste Wood Products
Ongoing
AEERL, Robert McCrillis (919) 541-2733

DESCRIPTION:
A two-phase project will be conducted. Phase I will identify sources from which waste wood products are derived. The composition of the waste wood products will be examined. Laboratory studies will be conducted and estimates developed for toxic emissions. Phase II is anticipated to be a detailed emissions measurement and characterization at operating waste wood incinerators.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0716
Indoor Air Cluster Project
Ongoing
OTS/EED, Christina Cinalli (202) 382-3913

DESCRIPTION:
OTS has initiated a screening process to identify chemicals that are related by a set of defined characteristics, thus allowing for a "clustering" of several chemicals into one project to be examined in the new existing chemicals program. One cluster making its way through the process is the indoor air cluster. An initial review of existing data on products and materials that could serve as sources of indoor air pollutants has identified the presence of about 250 unique chemicals. The data which come from a variety of studies, most of which were done by EPA, is being compiled into a computerized database. A screening level health assessment of these chemicals is scheduled and will be followed by further clustering of the chemicals and screening-level exposure assessment.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
IA	INDOOR AIR

CL-BIB-0717
Multi-Chamber Concentration and Exposure Model (MCCEM)
Completed
OTS, Patrick Kennedy (202) 382-3916

DESCRIPTION:
MCCEM is a PC-based, user-friendly computer program that estimates indoor concentrations for, and individual exposure to, chemicals released from products and materials used in residences. Concentrations can be modeled in up to 4 separate zones in a residences. The user can input time-varying emission rates for a contaminant in each zone of the residence, outdoor concentrations, and the zone where the individual is located in a spreadsheet environment. Short-term or annual exposure estimates can be developed.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0718
Review of BDAT Studies to Gather Data of Interest to Air Regulatory Programs
Ongoing
ORD/OEETD/RREL/CIN, Paul Warner (513) 569-7547, (513) 569-7787 (fax)

DESCRIPTION:
A literature search of previously generated regulatory background documents by OSW will be performed and pertinent information will be extracted from the reports, that is, information of interest to OAQPS. Additionally, personal contact with appropriate OSW and ORD leads will generate information on past, current and future projects that has not been published and that would be of interest to OAQPS and its regulatory program. The final report will include waste characterizations, identify emitted constituents, and make estimates of emission rates.

EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT

CL-BIB-0719
National Radon Potential Map
Ongoing
ORP/RD/PAB, Sharon Wirth (202) 245-3544

DESCRIPTION:
Sections 307 and 309 of the Indoor Radon Abatement Act (IRAA) direct the EPA to list areas of the U.S. with high radon potential. The EPA is working toward accomplishing this directive, with the assistance of the U.S. Geological Survey (USGS) and the Association of American State Geologists (AASG), by developing the National Radon Potential Map. The map will assign all counties of the U.S. to a priority level for radon potential. State radiation health officials and State and local building code officials are the target audiences for this map. The map will evaluate indoor radon data, geology, aerial radioactivity, soil characteristics, and foundation types to determine radon potential. There will be several background documents that will accompany the map. These documents will discuss the available data and its evaluation for radon potential on a state and regional level.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0720
Chromium Electroplating NESHAP
Ongoing
OAQPS/ESD/ISB, Beth Teague (919) 541-5425

DESCRIPTION:
This project involves the development of air emissions regulations for the control of air pollutants emitted from hard chromium electroplating, decorative chromium electroplating, and chromic acid anodizing. A National Emission Standards for Hazardous Air Pollutants (NESHAP) is scheduled for proposal in February 1992. The document, "Chromium Emissions from Chromium Electroplating and Chromic Acid Anodizing Operations Background Information for Proposed Standards," was drafted in December 1990.

CL-CHROME	CHROMIUM COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
18540-29-9	CHROMIUM (VI) COMPOUNDS
34	FABRICATED METAL PRODUCTS
347	METAL SERVICES, NEC
3471	PLATING AND POLISHING

CL-BIB-0721
Field Testing and Method Evaluation of Waferboard Plants
Started 3/91
OAQPS/TSD/EMB, Dennis Holzschuh (919) 541-5239

DESCRIPTION:
The EPA and the National Council for Air and Stream Improvement (NCASI) are participating in a joint testing effort to speciate and quantify emissions from waferboard plants. The initial phase of this testing will begin this summer and four tests are planned.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
24	LUMBER AND WOOD PRODUCTS
249	MISCELLANEOUS WOOD PRODUCTS
2493	RECONSTITUTED WOOD PRODUCTS

CL-BIB-0722
Field Testing of Medical Waste Incinerators (MWIs)
Ongoing
OAQPS/TSD/EMB, Dennis Holzschuh (919) 541-5239

DESCRIPTION:
Between June 1990 to present, EPA sponsored eight emission test programs at eight Medical Waste Incinerators (MWIs). The purpose of the test program was to collect data in support of reports to Congress being prepared by OSW and an NSPS for MWIs being prepared by OAQPS. Selection of the test sites was based principally upon (1) incinerator design and (2) emission control techniques. The objectives of these test programs were: (1) to obtain emissions data from facilities with and without air pollution control equipment which are typical of existing population of MWIs and (2) to collect data & evaluate the impact of incinerator operation variations on the emissions as a factor in the overall effectiveness of incineration as a treatment method.

CL-ACID	ACIDIC COMPOUNDS INCLUDING ACID GASES
CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
CL-METAL	METALLIC COMPOUNDS
CL-PATHOGN	PATHOGENS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0723
School Facility Managers' Guide to Indoor Air Quality
Started 1991; Ongoing
OAR/OAIAP/IAD, Bob Thompson (703) 308-8792

DESCRIPTION:
A guide will be developed for school districts to provide information for developing an indoor air quality management plan covering prevention, diagnosis, and mitigation of indoor air pollution.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
82	EDUCATIONAL SERVICES
821	ELEMENTARY AND SECONDARY SCHOOLS
8211	ELEMENTARY AND SECONDARY SCHOOLS

CL-BIB-0724
Air Toxics Emissions Reduction Initiative
Ongoing
OPM/AMMD/ACB, Ken Eng (212) 264-9627

DESCRIPTION:
An initiative begun by Region II looks at toxic air emissions from approximately 20 sources in the region to identify Pollution Prevention (PP) opportunities for those sources. Feasibility studies are underway at 5 facilities. Recommendations for PP opportunities are expected by August 1991. EPA will then solicit voluntary air toxics emissions reductions 30% to 50% from those 5 facilities.

EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION

CL-BIB-0725
Exposure Assessment for Motor Vehicle Air Toxics
Ongoing; Report due 9/91
OAQPS/OMS/TSS, Alva Edwards (313) 668-4321

DESCRIPTION:
This project will summarize all available recent ambient monitoring data for benzene, 1,3-butadiene, formaldehyde, and acetaldehyde, and estimate typical average U.S. urban exposure levels. It will also develop a model that will predict national annual average exposure levels of motor vehicle air toxics, using emission factors in grams per mile as input. A final report should be available by late summer, 1991.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
106-99-0	BUTADIENE,1,3-
50-00-0	FORMALDEHYDE
71-43-2	BENZENE
75-07-0	ACETALDEHYDE

CL-BIB-0726
Atmospheric Transformation of Air Toxics: Benzene, 1,3-Butadiene, and Formaldehyde
Ongoing; Report due 6/91
OAQPS/OMS/TSS, Richard Cook (313) 747-9638

DESCRIPTION:
This project will provide a summary of current understanding of the atmospheric reactivity and residence times of these toxics. In addition, urban airshed modeling of these toxics will be conducted for a summer day in the St. Louis urban area. The final report is scheduled for completion on June 28, 1991.

DM	DISPERSION MODELING
EPA	ENVIRONMENTAL PROTECTION AGENCY
106-99-0	BUTADIENE,1,3-
50-00-0	FORMALDEHYDE
71-43-2	BENZENE

CL-BIB-0727
Motor Vehicle Air Toxics Health Information
Ongoing; Report due 6/91
OAQPS/OMS/TSS, Pam Brodowicz (313) 668-4364

DESCRIPTION:
This project will summarize health information for benzene, formaldehyde, 1,3-butadiene, a number of motor vehicle-related toxics from Title III of the Clean Air Act, and several metals. The final report is scheduled for completion on June 28, 1991.

CL-METAL	METALLIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
106-99-0	BUTADIENE,1,3-
50-00-0	FORMALDEHYDE
71-43-2	BENZENE

CL-BIB-0728
Mobile Source-Related Air Toxics Study
Ongoing; Draft report due 11/91
OAR/OMS/TSS, Penny Carey (313) 668-4355

DESCRIPTION:
Section 206 of the 1990 Clean Air Act Amendments requires EPA to complete a study of the need for, and feasibility of, controlling emissions of unregulated toxic air pollutants associated with motor vehicles and fuels. The study is to focus on those categories of emissions posing the greatest risk to human health or about which significant uncertainties remain, including emissions of benzene, formaldehyde, and 1,3-butadiene. In addition, the study shall be available for public review with a summary of the public comments included with the study. The study is due May 15, 1992. An initial draft is scheduled for completion on November 1, 1991.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
106-99-0	BUTADIENE,1,3-
50-00-0	FORMALDEHYDE
71-43-2	BENZENE

CL-BIB-0729
Urban Air Toxics Monitoring Program
Started FY 87; Ongoing
OAQPS/TSD/MRB, Neil Berg (919) 541-5520

DESCRIPTION:
Because of recent concern for high cancer risk from multisource, multipollutant interactions in urban areas, State and local agencies have been seeking ways in which to assess the magnitude of potentially toxic compounds in their ambient air. To fill the need, EPA is coordinating toxic monitoring programs designed to provide air quality data for screening purposes. These programs are separate from programs within the Toxics Air Monitoring System (TAMS). Sampling is ongoing with equipment provided by EPA and manpower provided by State/local agencies.

AM	AMBIENT MONITORING
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0730
Characterization of Open Tire Burning Emissions and Exposures
Started May 1991; Ongoing
OAQPS/ESD/PAB, Tom Lahre (919) 541-5668

DESCRIPTION:
This project will compile available information on simulated tire burns and ambient air monitoring data around real tire burns. It will provide an estimate of worst case ambient air exposures over appropriate averaging times and compare exposures predicted from simulated tire burns with those estimated from measurements around actual tire burns.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0731
Analysis of Air Toxics Monitoring Data to Support Urban Area Source Program under Title III
Started 3/91
OAQPS/ESD/PAB, Tom Lahre (919) 541-5668

DESCRIPTION:
This project will compile and analyze available air toxics monitoring data from urban studies and determine--based on cancer and non-cancer tests--those pollutants that present the "greatest threat in the largest number of urban areas," as required under Subsection 112(R) of Title III of the CAAA.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0732
Emission Characterization Study for Integrated Iron and Steel Production
Ongoing
OAQPS/ESD/ISB, Jim Maysilles (919) 541-3265

DESCRIPTION:
Three goals of this project are: 1) to compile available emission data, 2) assess those data and determine inadequacies and what data are necessary to draft a BID, 3) develop an emissions testing program to acquire needed data. Field inspections are underway. The project expects to have an emissions test plan in place by Sept. 1991 for categories and subcategories of emissions sources.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
33	PRIMARY METAL INDUSTRIES
331	BLAST FURNACE AND BASIC STEEL PRODUCTS

CL-BIB-0733
Spray Booth Air Recirculation Demonstration
Ongoing
EPA/AEERL/OCB, Charles Darvin (919) 541-7633

A paint spray booth has been modified to evaluate the air recirculation and flow partioning concepts for booth operation. Either technique or both used simultaneously will permit significant reductions in booth VOC emissions flow volume. Reductions up to 95% are projected. Partioning promises to reduce or eliminate concerns for buildup of toxic compounds in recirculation streams.

CL-VOC VOLATILE ORGANIC COMPOUNDS
CT CNTRL TECHNOLOGY DOC
EPA ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0734
Physicians' Guide to Indoor Air Quality
Ongoing; complete 12/91
OAR/OAIAP/IAD, Elissa Feldman (703) 308-8376

The intent is to raise the level of awareness of primary care physicians about indoor air pollution and building-related illness; educate them about the range of health effects and symptoms which are associated with exposure to pollutants indoors; and assist them in making appropriate diagnoses and referrals. The product will be a brief (15-20 page) handbook, written by the American Lung Association under a cooperative agreement with the Indoor Air Division, for wide distribution to the medical community.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

CL-BIB-0735
Human Responses to Complex Mixtures of VOCs
Ongoing; started FY 91; complete 9/96
ORD/OHR/HERL, George Goldstein (919) 966-6204

"Sick building syndrome" (SBS) complaints have risen dramatically, but reliable and objective methods to distinguish between SBS-responders and nonresponder have not been identified. Congress has mandated that EPA characterize the sources and levels of exposure to VOC mixtures found in new buildings. The project goal is to characterize the human neural (olfactory and trigeminal) upper airway inflammatory pulmonary immune function and respiratory responses to controlled exposures to VOC mixturess, and to use these measures to distinguish between normal and "hypersensitive" subject or those exhibiting SBS symptoms. The study will (1) examine the selective contribution of neurologic responses to odor and sensory irritation, (2) seek evidence in nasal tissue and lavage fluid of chemical or cellular indicators of inflammation or allergy due to exposure, (3) measure ventilation, pulmonary function, bronchial reactivity, and eye irritation after exposure to mixtures frequently found indoors and collect response to a survey, and (4) evaluate patient data to aid in identifying and characterizing sensitive individuals.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

CL-BIB-0736
Animal/In Vitro Responses to Complex Mixtures of VOC's
Ongoing; started FY 91; complete 9/94
ORD/OHR/HERL, Dan Costa (919) 541-2531

VOCs emitted from various construction materials and objects found indoors appear to result in human discomfort and may induce more severe health effects due to their systemic redistribution. Some also appear to be cytotoxic or mutagenic. In this study, health impacts of VOC mixtures will be explored: (1) are there systemic effects resulting from inhalation exposures; (2) can a matrix approach be constructed to assess mixture toxicology due to additivity or interactions; (3) are VOC mixtures more or less likely than individual VOC's to induce mutagenic alterations in experimental in vitro systems? Results will be compared to those collected in human studies. The immunotoxicity of inhaled VOC mixtures will be assessed by measuring both local pulmonary and systemic immunological functions, including those defenses directed towards viral, bacterial, allergic, and neoplastic diseases. Questions of additivity or interaction of VOCs will be addressed for complex mixture toxicology to develop generic approaches for further study.

CL-VOC VOLATILE ORGANIC COMPOUNDS
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR

CL-BIB-0737
Impact of Mobile Emissions on Noncancer Risk
Ongoing; complete 9/96
ORD/OHR/HERL, John Rogers (919)541-5177

The goal of this project is to develop methods and data that characterize the risk for noncancer health effects due to mobile source emissions. This effort focuses on potential reproductive/developmental effects of methanol exposures which have been reported to be associated with reproductive and developmental toxicity in rats exposed to high concentrations. This study will extend the investigation of methanol effects to a second species, the mouse, and further explore reproductive toxicity in male and female rats. Animals are being exposed to methanol via inhalation during the critical time periods. Exposure concentrations will be selected to provide dose-response information. Pharmacokinetic information will be gathered to better understand target dose and relevance to humans.

EPA ENVIRONMENTAL PROTECTION AGENCY
TT TOXICITY TESTING
67-56-1 METHANOL

CL-BIB-0738
Impact of Mobile Source Emissions on Cancer Risk
Ongoing; complete 9/96
ORD/OHR/HERL, Joellen Lewtas (919) 541-3849

The goal of this project is to characterize the risk from mobile source emissions and put them in perspective as a component of total human exposure to carcinogens and mutagens. This project will integrate methods being developed in the hazardous air pollutant and integrated air cancer research programs in order to better characterize the risk from mobile source emissions. Methods will be developed to apportion potential cancer risk from alternative engine and fuel types. Methods for improving the risk estimation for products of incomplete combustion (PIC's) and polycyclic organic matter (POM) from mobile sources will be applied to this.

CL-POM	POLYCYCLIC ORGANIC MATTER
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0739
Study to Improve Assessments of Human Cancer Risk From HAPs
Ongoing; complete 9/96
ORD/OHR/HERL, Joellen Lewtas (919) 541-3849

The goal of this project is to determine to what extent toxic air pollutants cause lung and other types of cancer. This program is the health component of a long-range research effort to address major scientific uncertainties about the relationship between air pollution and human cancer. The program will provide scientific methods and data to improve evaluations of human cancer risk from individual or complex source emissions or from atmospheric transformation of precursor chemicals.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT

CL-BIB-0740
Toxics Release Reduction Project (TRRP)
Ongoing; started FY 90
EPA Region VI, John R. Hepola (214) 655-7220

The TRRP is part of a regional pilot project requested by EPA's Deputy Administrator on December 15, 1989. The project takes a dual approach for reduction of toxic emissions. The first approach will initiate a review of selected sources identified in the Headquarters Air Toxics Exposure and Risk Information System (ATERIS) list of January 2, 1990, to explore: (1) the possibility of reducing toxic emissions, (2) insuring compliance with all regulatory provisions and (3) conducting a complete multimedia risk assessment. The second approach involves a multimedia compliance investigation and subsequent multimedia risk assessment of selected facilities in the target areas to explore the potential for risk reduction.

EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION
RA	RISK ASSESSMENT
106-99-0	BUTADIENE,1,3-
71-43-2	BENZENE

CL-BIB-0741
Carpet Dialogue Process: Study of VOC Emissions from Carpets and Associated Products
Ongoing; complete 8/91
OAR/OAIAP/IAD, John Girman (703) 308-8790

This project will engage in a one-year effort to develop consensus and voluntary commitments regarding approaches to minimize exposure to VOCs emitted by carpets and associated products of carpet flooring systems. The goal of the project is to secure agreements with manufacturing associations of carpet and carpet-related products to define processes that can minimize emissions of volatile organic compounds from carpet and carpet-related products and to obtain commitments to implement them.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0742
Rule-Making for State Permit Programs under Title III of CAA
Ongoing
OAQPS/AQMD/PPB, Kirt Cox (919) 541-5399

All of the titles of the new CAA Amendments are to be implemented and enforced through a State or local operating permit program. EPA must promulgate regulations on what the State permit programs should contain. This project has developed the proposed rules which appear in the May 10 Federal Register. The next stage will address comments and revise the rules which are due to be promulgated within one year of the date the CAA Amendments went into effect.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD

CL-BIB-0743
NESHAP Development for New and Existing Sources
Ongoing
OAQPS/ESD/ISB, Jeff Tealander (919) 541-5427

The goal of this project is to evaluate MACT for combustion sources in the pulp and paper industry to develop national emissions standards for new and existing sources.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
26	PAPER AND ALLIED PRODUCTS
261	PULP MILLS
262	PAPER MILLS

CL-BIB-0744
Biological Markers for Environmental Tobacco Smoke (ETS) Exposure and Dosimetry
Ongoing; complete 11/93
ORD/OHR/HERL, Joellen Lewtas (919) 541-3849

For optimal assessment, biological markers of exposure should be measured directly and include uptake into blood, distribution and metabolism, binding to macromolecules (e.g., protein and DNA), and excretion into urine. The goal of this project is to evaluate biological markers (i.e., nicotine metabolite cotinine and DNA adducts) that can be used effectively in assessing the exposure, absorption, and distribution of components of ETS. Also, the aim is to develop, evaluate, and apply these biological markers and other molecular exposure dosimetry methods to human studies. To provide definitive data on the relationship between human exposure, dose, and effects of indoor organic pollutants, markers for exposure and dosimetry must be developed. One approach is to identify unique tracer compounds present in ETS and their metabolites. Nicotine, for example, is virtually unique to tobacco sources and both nicotine and its metabolite, cotinine, can be measured in human tissue or fluids. The use of DNA adducts has been developed as a molecular biomarker of exposure to tobacco smoke. The application of these markers will be validated in field studies of a population highly exposed to ETS or in a potentially more sensitive population such as preschool children.

CL-ETS	ENVIRONMENTAL TOBACCO SMOKE
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0745
33/50 Industrial Toxics Project
Ongoing
OPME/OTS, Bill Burch (202) 382-3761

The 33/50 Program (Industrial Toxics Project) is a pollution prevention initiative which seeks to secure voluntary reductions of releases and off-site transfers to air, land and water of 17 toxic chemicals by 50%, from 1.4 billion pounds in 1988, down to 700 million pounds by 1995, with an interim 1/3 reduction by 1992. The Toxics Release Inventory (TRI) will be used to track reductions. Success will be measured according to nationwide reduction achievement for the aggregate of all the 17 chemicals. The Administrator has asked over 600 U.S. companies to participate by examining their processes to identify and implement cost-effective pollution prevention practices related to the 33/50 chemical. EPA expects to receive company numerical reductions commitments during summer 1991. Participation by companies is voluntary and nonenforceable.

CL-CHROME	CHROMIUM COMPOUNDS
CL-LEAD	LEAD COMPOUNDS
CL-NICKEL	NICKEL COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION
108-88-3	TOLUENE
127-18-4	TETRACHLOROETHYLENE
1330-20-7	XYLENE
56-23-5	CARBON TETRACHLORIDE
563-80-4	METHYL ISOPROPYL KETONE
57-12-5	CYANIDE
67-66-3	CHLOROFORM
71-43-2	BENZENE
71-55-6	TRICHLOROETHANE,1,1,1-
74-90-8	HYDROGEN CYANIDE
7439-97-6	MERCURY
7440-02-0	NICKEL
7440-43-9	CADMIUM
7440-47-3	CHROMIUM
75-09-2	METHYLENE CHLORIDE
78-93-3	METHYL ETHYL KETONE
79-01-6	TRICHLOROETHYLENE

CL-BIB-0746
Health Effects Assessment Summary Tables (HEAST)
Ongoing
OHEA/ECAO-Cin, Pei-Fung Hurst (513) 569-7300

HEAST is a tabular presentation of toxicity information and values for chemicals/compounds and radionuclides for which OHEA/ORP risk assessment documents have been prepared. HEAST directs users to changes in risk assessments and also directs the users to the original source documents for the most complete characterization of potential toxicity. The complete HEAST is distributed annually and then updated by quarterly supplements. Non-EPA users may obtain HEAST from the National Technical Information Service (NTIS) (800/336-4700) with the order number PB91-921100.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
RA	RISK ASSESSMENT

CL-BIB-0747
National Emission Standards for Hazardous Air Pollutants; Amendment to Benzene Rule for Coke By-Product Recovery Plants
Notice of Proposed Rulemaking, 4/1/91
OAQPS/ESD/SDB, Gail Lacy (919) 541-5261

The NESHAP to control benzene emissions from coke by-product recovery plants was promulgated as 40 CFR Part 61 Subpart L on September 14, 1989 (54 FR 38044). This amendment is to add provisions for the use of two different control devices (carbon adsorbers, vapor incinerators) as alternative means to comply with the standards for process vessels, storage tanks and tar-intercepting sumps. The new provisions would not change the stringency of the standards.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
49	ELECTRIC, GAS, AND SANITARY SERVICES
492	GAS PRODUCTION AND DISTRIBUTION
4925	GAS PRODUCTION AND/OR DISTRIBUTION
71-43-2	BENZENE

CL-BIB-0748
Municipal Waste Combustors NSPS, Phase II
Ongoing
OAQPS/ESD/SDB, Walt Stevenson (919) 541-5264

On February 11, 1991, NSPS and guidelines were promulgated for new and existing MWC's with unit capacities above 250 tons per day. These regulations include emission limits for particulate matter, opacity, dioxins/furans, SO2, HCl, and CO. The regulations also include combustor operating practices, operator certification, and operator training. In addition, the NSPS for new MWC's include NOx limits.

CL-DIOXIN	DIOXINS
CL-FURAN	FURANS
CL-PM	PARTICULATE MATTER
EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
10102-44-0	NITROGEN DIOXIDE
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
630-08-0	CARBON MONOXIDE
7446-09-5	SULFUR DIOXIDE
7647-01-0	HYDROGEN CHLORIDE

CL-BIB-0749
Secondary Lead Smelters NSPS Review
Ongoing; started 2/91
OAQPS/ESD/ISB, George Streit (919) 541-2364

Reviewing the NSPS as a part of EPA's Overall Lead Strategy to promote recycling of lead car batteries. Investigating industry structure, roles of different segments of the secondary lead industry (e.g., lead remelters, lead refiners, battery breakers), and the need for including these in the NSPS. Also investigating pollution prevention by electrowinning of lead oxide in lead batteries.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
PP	POLLUTION PREVENTION
33	PRIMARY METAL INDUSTRIES
334	SECONDARY NONFERROUS METALS
3341	SECONDARY NONFERROUS METALS

CL-BIB-0750
Consumer Product Emissions Prevention Research
Ongoing
AEERL-RTP, Michael Kosusko (919) 541-2734

This project's goals are to prevent VOC and toxic emissions by identifying and demonstrating low-polluting consumer products. The initial activity, Aerosol Propellant/Packaging Changes, will identify alternatives to organics as propellants and carrier solvents and investigate packaging alternatives to aerosols. Region IX has a major role in this activity. Viable non-aerosol product substitutes will be identified in a Prevention Options Availability Report. Emphasis will be placed on those products that are the greatest contributors to VOC emissions. OAQPS has a major role in this activity. Innovative pollution prevention options, such as product substitution and reformulation, will significantly reduce organic emissions from consumer products. Such products are a significant, uncontrolled source of VOC emissions (up to 10% of the stationary area source inventory). Aerosols release approximately 650K Tpy of organics in the U.S. Hence, aerosols are an area where a significant impact can be made. Consumer products also contribute to air toxic, stratospheric ozone depletion, and global climate problems. This task includes the resources needed to accelerate the process of developing and implementing viable prevention options.

CL-CONSUMR	CONSUMER PRODUCTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION

CL-BIB-0751
Evaluation of Potential Coating Technologies
Ongoing
AEERL-RTP, Michael Kosusko (919) 541-2734

This project's goals are to identify opportunities for prevention of organic emissions from coating operations, provide a basis for demonstration projects, and facilitate technology transfer. Two activities are proposed: (1) The Evaluation of Potential Coating Technologies activity will identify and evaluate coatings which are more environmentally acceptable than those currently in use. Focus will be on small stationary area sources. (2) The Surface-Coating-Free Materials Workshop will explore approaches and techniques which offer potential to eliminate the need for coatings. Two workshops will ascertain the viability of new materials and opportunities for their demonstration. Industry, DOD, and NASA will be solicited to help identify emerging technologies. This effort will reduce VOC and other emissions from coating operations to promote attainment of the ozone NAAQS and reduce exposure to air toxics. Coating operations release approximately 15 percent of stationary area source VOC emissions (1985 NAPAP). Many sources cannot be impacted by add-on controls at a reasonable cost due to their small size and/or difficulty of capturing emissions. Hence, prevention technology is needed. The use of coating-free materials would eliminate emissions both during the manufacture and the life of the products by avoiding the coating process.

CL-SOLVENT	SOLVENTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION

CL-BIB-0752
Alternative Coatings Demonstration Projects
Ongoing
AEERL-RTP, Michael Kususko (919) 541-2734

The goals of these projects are to demonstrate the economics, ease of manufacture, quality, and durability of coated products manufactured using environmentally safe technologies. New coating systems for wood furniture and autobody refinishing will be demonstrated. Promising technologies are available in these areas. A third demonstration area will be selected based on discussions with potential industrial partners, the Department of Defense, or on results of the Evaluation of Potential Coating Technologies task. The demonstrations will focus on technologies for small, stationary area sources. However, demonstrations for larger area sources will be considered should suitable opportunities for small sources not be available. Emissions from coating operations will be reduced to allow attainment of the ozone standard and decrease exposure to air toxics. Approximately 15 percent of stationary area source VOC emissions are released from coatings (1985 NAPAP). Often add-on controls cannot impact these emissions at a reasonable cost due to the small size of the sources & the difficulty of capturing emissions. Prevention technologies are needed. This task will establish the basis for future (post-'93) OAQPS rulemaking by demonstrating the next generation of technology. State agencies could establish more stringent regs as technology becomes available.

CL-SOLVENT	SOLVENTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION
25	FURNITURE AND FIXTURES
75	AUTO REPAIR, SERVICES, AND PARKING
753	AUTOMOTIVE REPAIR SHOPS
7532	TOP & BODY REPAIR & PAINT SHOPS

CL-BIB-0753
Minimizing Solvent Emissions From Pesticides
Ongoing
AEERL-RTP, Michael Kosusko (919) 541-2734

This project's goals are to establish a regulatory strategy to reduce the VOCs, stratospheric ozone depleters, and greenhouse gases used in, and thereby emitted from, pesticides; enhance VOC emission reduction projects by quantifying the type and amount of solvent inerts used in pesticides; and extend the regulatory strategy for pesticide inerts by developing a sound technical basis which can be used by OPP to influence the reformulation of pesticides. AEERL will assemble and provide data on photochemical reactivity, stratospheric ozone depletion potential, and greenhouse factors to ensure full consideration of air issues in the resulting strategy. Research will provide the information needed to reduce VOC and other organic emissions from pesticides. Pesticide inerts, the carriers and solvents used in pesticide formulations, are the source of substantial environmental problems. OPP has addressed toxicity issues in its pesticide inerts strategy. However, inerts, many of which are VOCs, stratospheric ozone depleters, or greenhouse gases, continue to be released to the atmosphere during pesticide use. The pesticides inerts strategy does not presently have a defensible technical basis for dealing with these cross-regulatory problems. This task will provide that basis.

CL-PEST	PESTICIDES
EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION
28	CHEMICALS AND ALLIED PRODUCTS
287	AGRICULTURAL CHEMICALS
2879	AGRICULTURAL CHEMICALS, NEC

CL-BIB-0754
Research House Investigation of Radon Source Potentials, Entry, Accumulation, and Removal Mechanisms
Ongoing
AEERL-RTP, David Sanchez (919) 541-2979

In this project, research houses, as well as bench & pilot scale simulations, will be used to perform controlled experiments to understand processes that influence radon entry & its prevention or removal. Bench scale models (1/200 of full scale) will be used in the lab to quickly & inexpensively test new concepts & to measure relative importance of certain building & soil features. Pilot scale models (1/20 of full scale) will be used to control individual parameters relating to soil & substructure. Research houses (full scale) will be used to study the basic mechanisms of radon entry. An attempt will be made to reconcile similarities & differences of real houses with pilot scale studies. Previous research was performed primarily in occupied houses where the ability to control or change parameters was limited. The new recommended approach is to conduct research in unoccupied houses where construction details have been documented. Because some parameters cannot be individually controlled in unoccupied research houses, it is important to supplement these studies with small-scale structures that can be better controlled, i.e., laboratory- & pilot-sized units. By better understanding the relative contributions of the individual mechanisms to the indoor radon levels it will be possible to improve existing mitigation methods, perhaps at less costs.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0755
Application of Innovative Pressure Control Techniques in Radon Reduction
Ongoing
AEERL-RTP, Timothy Dyess (919) 541-2802

It is very important that effective radon mitigation methods are available at costs that do not discourage their use; reducing all houses in the U.S. to 4 pCi/L would save 5,000 lives per year, while reducing all houses in the U.S. to 1 pCi/L would save 13,000 lives per year. The key objective of this project is to develop effective low-cost methods to reduce radon in low-level houses. Since pressure-driven flow is the dominant entry process, the general approach will be to study methods of controlling the pressure differentials. Passive ventilation is a promising technique. A study in one of our test houses shows that opening basement windows can result in 6- to 8-fold radon reductions while increasing the air exchange rate only by a factor of 2. The method is effective because the radon entry rate is suppressed by a decrease in pressure differential. This method will be extended to systematically study both active pressurization and the effect of air dynamics on house pressure. Our demonstration that an effective pressure break can result from something as simple as opening windows provides incentive to try to decouple the house from the soil by providing a pressure break at the house-soil interface by use of porous sheeting or a similar concept. This approach will be investigated.

CT CNTRL TECHNOLOGY DOC
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

CL-BIB-0756
Performance and Durability of Mitigation System Components and Materials
Ongoing
AEERL-RTP, Bruce Harris (919) 541-7807

This program will test the components of mitigation systems and their ability to reduce radon levels. Component durability will be studied over time to determine if radon reductions can be maintained. Laboratory studies of mechanical systems such as fans and alarms will provide durability data under simulated field conditions and will determine parameters to monitor in the field. Block wall coatings, concrete slabs, soil modifiers etc., will be tested in the lab and later in field studies. Durability data will result in extended control when the best performing mechanical systems are incorporated into home and school mitigation systems. Concrete slabs and soil modifiers found to impede or prevent radon flow will be added to building codes in radon prone areas and should reduce radon entry into new buildings.

CT CNTRL TECHNOLOGY DOC
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

CL-BIB-0757
Develop Information Needed For Effective Application of Active Soil Depressurization (ASD)
Ongoing
AEERL-RTP, Bruce Henschel (919) 541-4112

This project will continue testing to demonstrate the ability of ASD to achieve radon concentrations of 1 pCi/L & less in slightly elevated houses. In FY 91, the project will: (1) address difficult slab-on-grade (SOG) houses & houses with inaccessible crawl spaces, through testing in 4 SOG houses & 1 CS house in New Mexico; (2) demonstrate the "entry potential" approach on the SOG houses as an effective means for ASD design; (3) initiate testing in slightly elevated townhouses to determine how ASD results for detached houses apply to attached dwellings, & (4) continue to assess durability of ASD. The "entry potential" approach identifies where ASD pipes should be located, utilizing measurements of sub-slab radon concentrations & flows up through slab test holes when the house is depressurized, together with a simple radon transport/entry model. This approach to ASD design has not previously been tested & offers promise both as a design tool & as a means for understanding/optimizing ASD systems in poor-communication houses. SOG houses, which are difficult due to packed dry sand/clay (no aggregate) under the slab, represent an important segment of the housing stock which has not been studied prior to this project. Because no mitigation system is older than 5 years, durability testing must continue, to assess any sources of failure as these systems age.

CT CNTRL TECHNOLOGY DOC
EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

CL-BIB-0758
Field Study of Radon Levels in Pre- and Post-Occupied New Houses
Ongoing
AEERL-RTP, Bruce Harris (919) 541-7807

This study will determine the effects of occupancy on radon levels and the ability of active soil depressurization systems to consistently achieve less than 1 pCi/L. Pre- and post-occupancy testing of radon levels will take place in 40 newly constructed, radon-resistant houses with active depressurization systems that are located in 4 different radon-prone areas of the country. Quality control will be monitored at various stages of construction but no attempt will be made to improve or influence construction procedures. The results of this study will determine the need for post-occupancy testing of newly constructed radon resistant houses and will determine the ability of radon resistant construction practices identified in the "Model Standards and Techniques for Control of Radon in New Buildings" to prevent elevated radon levels under normal, occupied conditions. For those houses with radon levels above 1 pCi/L, additional investigations into the ASD system design and operation should identify design/operation flaws. Further data collection of these ASD systems will produce information as to the effectiveness of an ASD to consistently achieve radon levels below 1 pCi/L.

EPA ENVIRONMENTAL PROTECTION AGENCY
IA INDOOR AIR
10043-92-2 RADON

CL-BIB-0759
Development of Optimal HVAC Configurations for Radon Mitigation in New Houses
Ongoing
AEERL-RTP, Timothy Dyess (919) 541-2802

This project will develop and demonstrate optimal HVAC configurations and construction factors by determining the effect of typically installed HVAC systems on interior pressures of 10 houses. The optimally installed systems will be evaluated for minimization of pressure differentials. This study will also evaluate pressure control as a mitigation enhancement technique in radon-resistant new construction. It has been observed in previous research projects that the operation of central forced air heating and cooling systems enhances the pressure differences that drive soil gas infiltration. Residential HVAC systems are typically installed with little or no regard for indoor pressure effects, thus research is needed to identify those characteristics of the forced air system that impact interior pressures, and determine the methods by which the installation can be modified so that the systems minimize their effect on soil gas infiltration. Continuance of existing work on the benefits of localized and whole-house pressurization as a radon mitigation enhancement technique will contribute to the understanding of pressure relations between forced air system operation and interior house pressures.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0760
Profile of School Building Characteristics Influencing Radon Entry and Mitigation
Ongoing
AEERL-RTP, Kelly Leovic (919) 541-7717

Previous research efforts provide a qualitative understanding of important school building characteristics relevant to radon entry and mitigation; however, in order to best focus AEERL research efforts, it is important to quantify many of these significant school building characteristics to help direct future research. At present, there are no building population characteristics statistics for schools comparable to what exist for residences. Such information is necessary to effectively design and implement an R&D program on mitigation. This project will collect building characteristics of schools (structure, heating, ventilating, and air-conditioning systems, locations of utility lines, etc.) and enter them into a data base for analysis. Information will be obtained via AEERL's school profile sheet (used to evaluate potential research schools) and through the Office of Radiation Programs' national school survey.

EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
82	EDUCATIONAL SERVICES

CL-BIB-0761
Demonstration of Active Subslab Depressurization (ASD) in Schools with Varied Construction, Geology, and Climate
Ongoing
AEERL-RTP, Kelly Leovic (919) 541-7717

In this project, construction features (structure, heating, ventilating, and air-conditioning systems, locations of utility lines, etc.), geology, and climate will be considered in demonstrating the regional applicability of ASD systems. Ten to 15 schools will be selected for radon diagnostic studies. Typically, the schools will be responsible for installation of the recommended mitigation system(s), with subsequent system evaluation by AEERL. ASD has been demonstrated in a limited number of schools and diagnostic measurements have assessed its potential in a number of additional schools. Experience has shown that construction practices and subslab material (aggregate) vary widely, and these variables--along with geology and climate--must be thoroughly assessed and understood in representative schools in order to provide the public with appropriate ASD guidance for schools.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON
82	EDUCATIONAL SERVICES

CL-BIB-0762
Methods Development for Indoor Air Source Characterization
Ongoing; complete 9/95
AEERL-RTP, Bruce Tichenor (919) 541-2991

Emissions from indoor sources must be understood in order to determine their impact on indoor air quality. Progress has been made in developing chamber tests to determine chemical emission rates. These data can be used in indoor air quality models to predict indoor concentration in time and space. Available health effects data are generally insufficient to determine the health and comfort effects associated with these indoor concentrations. Thus, source testing methods will be developed to link the chemical exposure to a biological response. Data on emission rates from a variety of indoor sources will be developed. Manufacturers will use the data and methods to assist in the development of "low emitting" products and materials. Small and large environmental test chambers will be used to evaluate source emission rates as a function of physical and chemical variables. Biological response based tests will be developed to link the chemical emissions to human health and comfort effects.

CL-IAP	INDOOR AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0763
Engineering Evaluation of the Indoor Air Biocontaminant Pollution Prevention, Remediation, and Control
Ongoing; complete 9/96
AEERL-RTP, John Chang (919) 541-3747

This project is a result of AEERL indoor air biocontaminant research planning efforts which included literature review, workshop, field visits, and telephone interviews. Data indicate that indoor air biocontamination by mites, fungi, bacteria, and virus may be one of the main causes responsible for the "sick building syndrome" and "building related illness." Due to the lack of focused and systematic research, the source, cause, and control of the indoor biocontaminants have been very controversial and confusing. Commercial services such as air duct cleaning, carpet cleaning, biocide application and indoor air consulting have been increasingly available, yet no assessment on the appropriateness and efficacy of those services have been conducted. The purposes of this project are to perform pioneering and systematic research in the indoor biocontaminant area and to provide scientific data to address those issues.

CL-BACT	BACTERIA
CL-IAP	INDOOR AIR POLLUTANTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0764
Evaluation of Ventilation for Indoor Air Quality Control
Ongoing; complete 9/96
AEERL-RTP, Leslie Sparks (919) 541-2458

Extensive research has been done on ventilation rates of buildings, especially in connection with energy conservation. The practice of mechanically ventilating commercial buildings for thermal comfort and IAQ control (by diluting and exhausting pollutants) is well established, if not well understood. Better information is needed on the distribution of ventilation air, and how it effects ventilation effectiveness. The importance of ventilation systems as sources of chemical and biological contaminants also needs to be better understood. This project will evaluate ventilation effectiveness. It will also develop guidance on avoiding materials in ventilation systems that promote growth of biocontaminants, or act as sinks that reemit and become major sources of indoor air pollutants and on engineering design for materials and systems to control humidity and moisture in buildings to reduce indoor levels of biocontaminants. A secondary goal is to support improvements in private-sector standards for ventilation practices, such as ASHRAE Standard 62. Finally, the project will evaluate the effectiveness and costs of ventilation as an IAQ control option with special attention to effectiveness of local ventilation and local exhaust.

CL-IAP	INDOOR AIR POLLUTANTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0765
Dose Rate Inhalation Study of Ethylene Oxide
Ongoing; complete 12/92
NIOSH/DBBS/ETB, William Moorman (513) 533-8275

Ethylene oxide was nominated to the NTP as an ethylene compound with significant potential for human exposure. Dose rate experiments were completed in early 1991. Tumor pathology is underway including investigations of DNA adducts, cytogenetics and immunotoxicology. Summary of results and report preparation is expected in late 1992. This will provide NTP toxicological direction for acute and chronic information (organ function toxicity and cancer).

NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
TT	TOXICITY TESTING
75-21-8	ETHYLENE OXIDE

CL-BIB-0766
Assays of Respirable Genotoxic Particulates
Ongoing
NIOSH/DRDS/ENIB, William Wallace (304) 291-4421

This project will conduct in vitro genotoxicity assays on respirable particulate materials. The materials are assayed for mutagenicity, clastogenicity and DNA damaging activities. Particles are assayed as particle dispersion in pulmonary surfactant and also as solvent extracts. Types of materials to be examined include diesel soot, other combustion process organic particulates and complex particles such as organics on mineral substrates.

CL-PM	PARTICULATE MATTER
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
TT	TOXICITY TESTING

CL-BIB-0767
Role of Fungal Spores in Organic Dust Toxic Syndrome (ODTS)
Ongoing; complete 2/93
NIOSH/DRDS/LIB, William Sorenson (304) 291-4593

This project will help to provide an understanding of the role of fungal spores in the etiology of ODTS through isolation of pure preparations of fungal spores, and through investigations of the effect of those spores on cellular components of the immune system.

CL-SPORES	FUNGAL SPORES
HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

CL-BIB-0768
Development of Bioassays: Identify Health Risks of Asbestos Substitutes
Ongoing; complete 9/92
NIOSH/DRDS/LIB, Vincent Castranova (304) 291-4593

This project will develop methodologies allowing assessment of relative toxicities of fibers having identical chemistry but different dimensions, and fibers having similar morphology but different chemistry.

CL-GLASS	FIBROUS GLASS DUST
CL-MINFIB	MINERAL FIBERS
HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

CL-BIB-0769
Fiber Toxicity: Surface Properties and Analysis
Ongoing; complete 9/92
NIOSH/DRDS/EPIB, William Wallace (304) 291-4421

This project will use physical methods to reveal the surface properties of fibers, including surface and bulk composition, dimensions and surface area, using Auger, XPS, and EDX spectroscopy and bet surface analysis. Results will be correlated with the surface toxicity of native and surfactant-treated mineral fibers.

CL-MINFIB	MINERAL FIBERS
HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

CL-BIB-0770
An Epidemiologic Study of Indoor Air Quality
Ongoing; complete 9/93
NIOSH/DSHEFS/IWSB, Andrea Okun (513) 841-4304

This study will address the relationships between indoor air quality and symptoms of disease including respiratory effects, headaches, and skin and eye irritation; and determine if inadequate ventilation is associated with these symptoms.

ES	EPIDEMIOLOGY STUDY
IA	INDOOR AIR
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

CL-BIB-0771
Health Risks Associated With Asphalt
Ongoing; complete 9/91
NIOSH/DSDTT, Crystal Ellison (513) 533-8302

This project will provide a critical evaluation of information on the health risks associated with exposure to asphalt. The evaluation will be used to develop a position paper that will provide a recommendation concerning the need to develop a document addressing the hazards of exposure to asphalt.

NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
RA	RISK ASSESSMENT
14	NONMETALLIC MINERALS, EXCEPT FUELS
149	MISCELLANEOUS NONMETALLIC MINERALS
1499	MISCELLANEOUS NONMETALLIC MINERALS
16	HEAVY CONSTRUCTION, EX. BUILDING
161	HIGHWAY AND STREET CONSTRUCTION
1611	HIGHWAY AND STREET CONSTRUCTION
17	SPECIAL TRADE CONTRACTORS
177	CONCRETE WORK
1771	CONCRETE WORK
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING
295	ASPHALT PAVING AND ROOFING MATERIALS
2951	ASPHALT PAVING MIXTURES AND BLOCKS
64741-88-4	PETRO DISTILL(HEAVY)

CL-BIB-0772
Beryllium Case Control Study
Ongoing; complete 9/92
NIOSH/DSHEFS/IWSB, Wayne Sanderson (513) 841-4203

This study will assess the relationship between level and type of beryllium exposure and risk of lung cancer.

ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
7440-41-7	BERYLLIUM

CL-BIB-0773
Ethylene Oxide Mortality Study
Ongoing; complete 9/91
NIOSH/DSHEFS/IWSB, Kyle Steenland (513) 841-4207

This epidemiologic study will assess the association between exposure to ethylene oxide and the risk of developing leukemia.

ES	EPIDEMIOLOGY STUDY
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
75-21-8	ETHYLENE OXIDE

CL-BIB-0774
Evaluation of Toxic Gas Monitors for Indoor and Workplace Air
Ongoing
NIOSH/DPSE/MRS, Jerome Smith (513) 841-4263

By conducting laboratory and field evaluations of portable instrumentation, the project will provide data and information on the application and maintenance of gas monitors in an indoor air or workplace monitoring situation.

IA	INDOOR AIR
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH

CL-BIB-0775
Study of Methyl Bromide and Sulfuryl Fluoride Applicators
Ongoing; complete 6/92
NIOSH/DSHEFS/IWSB, Anthony Suruda (513) 841-4203

This project will assess the effects of methyl bromide and sulfuryl fluoride on target organs (nervous system and kidney) and develop biological monitoring techniques for both.

HA	HEALTH ASSESSMENT
NIOSH	NATIONAL INSTITUTE FOR OCCUP. SAFETY AND HEALTH
2699-79-8	SULFURYL FLUORIDE
74-83-9	METHYL BROMIDE

CL-BIB-0776
Medical Waste Incinerators NSPS and Existing Sources Guidelines
Ongoing
OAQPS/ESD/ISB, Jim Eddinger (919) 541-5426

The regulatory program authorized by Section 129 of the 1990 CAA Amendments requires the development of an NSPS and emissions guidelines for existing facilities. This project will develop NSPS and guidelines for medical waste incinerators. The proposal is expected by July 1992; the rules will be promulgated September 1993.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0777
CAA Title III Guidance Documents for State and Local Agencies
Ongoing
OAQPS/ESD/PAB, Martha Keating (919) 541-5376

The EPA is developing guidance documents for use by State and local governments which summarize the provisions of the 1990 CAA Amendments, particulary Title III requirements. The report is currently in draft form and will be available from the above contact upon completion.

EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE

CL-BIB-0778
Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions
Ongoing; complete late 1991
OAQPS/ESD/CPB, Jim Durham (919) 541-5672

The overall objective of this project was to estimate refinery emissions of the 189 HAPS listed in the CAA Amendments. The effort involved quantifying emissions from every refinery process unit for each of the following classifications: process vents, equipment leaks, storage tanks, transfer operations, and wastewater collection and treatment. The goal was to develop emission factors for each HAP, total HAPs, and total volatile organic compounds (VOC). Furthermore, annual emissions of all HAPs were to be determined for each refinery process and for each individual U.S. refinery. A report is currently in draft form.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING

CL-BIB-0779
NSPS Development for Medical Waste Incinerators: Pathogen Sampling
Ongoing
OAQPS/ESD/EMB, Foston Curtis (919) 541-1063

Earlier work resulted in the development of test methods for monitoring pathogen emissions from medical waste incinerators. The methods are available through the Emission Measurement Technical Information Center. The method is being used in ongoing field testing of facilities to procure data for setting the NSPS standards. Tests are scheduled for completion by October 1991.

CL-PATHOGN	PATHOGENS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0780
Evaluation of Mercury Test Methods for Monitoring Municipal Waste Incinerators
Ongoing
OAQPS/TSD/EMB, Foston Curtis (919) 541-1063

This project involves the development of a test method for monitoring mercury emissions from municipal waste incinerators (MWI). Current mercury test methods used for sewage sludge incinerators are being evaluated for their applicability to MWI. Data from field tests will be used for developing NSPS.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
7439-97-6	MERCURY

CL-BIB-0781
Development of the Hazardous Organic NESHAP for Wastewater
Ongoing
OAQPS/ESD/CPB, Penny Lassiter (919) 541-5396

The primary objective of this project is the development of a wastewater NESHAP for organic hazardous air pollutant emissions from wastewater generated within SOCMI processes which produce or use organic HAPS. Major activities currently include: (1) preparation of final control costs; (2) preparation of wastewater chapters for the BID, Volume 1B and 1C; (3) preparation of a wastewater appendix for the BID, Volume 1A; (4) estimation of national environmental impacts; and (5) selecting and evaluating control options.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
28	CHEMICALS AND ALLIED PRODUCTS

CL-BIB-0782
Background Information for the Pulp and Paper Industry NESHAP Development
Ongoing
OAQPS/ESD/CPB, Penny Lassiter (919) 541-5396

The purpose of this project is to produce a Background Information Document (BID) to assist the EPA in evaluating the need to develop a NESHAP, CTG or other control measures to address Hazardous Air Pollutants (HAPS) emissions from pulp and paper manufacturing. The BID will include an overview of the U.S. pulp and paper industry, a characterization of air emissions and their sources, and a discussion of control technologies currently in use.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
26	PAPER AND ALLIED PRODUCTS
261	PULP MILLS
2611	PULP MILLS
262	PAPER MILLS
2621	PAPER MILLS

CL-BIB-0783
Update of the Field Inspection Manual for Municipal Waste Incinerators
Ongoing
OAQPS/SSCD/CMB, Tom Ripp (703) 308-8727

EPA is updating the 1990 version of the "Municipal Waste Incinerator, Field Inspection Manual" to include the new requirements of the Feb. 11, 1991 regulation (40 CFR Parts 51,52,60). The manual presents technical and health/safety information regarding inspection of MWI's which will help inspectors to develop independent and accurate assessments of source compliance status.

EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0784
Consumer Product Comparative Risk Project
Ongoing; started 8/90; complete spring 1993
OAQPS/ESD/PAB, Vasu Kilaru (919) 541-5332

The purpose of the Consumer Product Comparative Risk (CPCR) Project is to develop a methodology, for use as guidance, that systematically and comprehensively evaluates the environmental consequences of consumer products throughout all of the phases of a product's life cycle from cradle to grave. The first phase of this project, begun in August 1990, focuses on development of a guidance document for the inventory stage of Life Cycle Analysis (LCA). Additional products include development of a method to screen products for more or less detailed analysis, development of a streamlined method to simplify the LCA process, a communications strategy to evaluate methods of transmitting LCA information, and finally case studies of product groups using the LCA methodology.

CL-CONSUMR	CONSUMER PRODUCTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT

CL-BIB-0785
Control Technology Guidance (CTG) Development for Offset Lithography
Ongoing
OAQPS/ESD/CPB, Karen Catlett (919) 541-0835

The objective of this project will be to: (1) investigate the low VOC alternatives available for the variety of inks, fountain solution, cleanup solutions, and abatement technology used in lithographic printing processes, (2) explore the environmental impacts and costs that could result from specific control technologies, and ultimately (3) develop a Control Technology Guideline Document (CTG) for the lithographic printing industry. This project will consider both heatset and non-heatset, web and sheet-fed printing. The CTG would provide substantiating information to support a recommendation of Reasonably Available Control Technology (RACT), and show how States could write and implement regulations for this industry.

CL-SOLVENT	SOLVENTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
27	PRINTING AND PUBLISHING
275	COMMERCIAL PRINTING
2752	COMMERCIAL PRINTING, LITHOGRAPHIC

CL-BIB-0786
Standards Development for Architectural and Industrial Maintenance (AIM) Surface Coatings
Ongoing
OAQPS/ESD/CPB, Ellen Ducey (919) 541-5408

This project seeks to determine which AIM coatings categories are best candidates for Federal VOC emission regulations and will identify the feasible limits on the VOC content of coatings in each category. Selection of coating categories and corresponding VOC limits will be based on solvent content, performance requirements, and availability of lower VOC substitutions. Marine coatings will also be considered as part of the AIM coatings rule, as a stand-alone rule, or as part of a CTG for the shipbuilding and repair industry.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
28	CHEMICALS AND ALLIED PRODUCTS
285	PAINTS AND ALLIED PRODUCTS
2851	PAINTS AND ALLIED PRODUCTS

CL-BIB-0787
Control Techniques Guideline (CTG) for Wood Furniture Coating - National Air Pollution Control Techniques Advisory Committee (NAPCTAC) Preparation
Ongoing
OAQPS/ESD/CPB, Karen Catlett (919) 541-0835

The objectives of this project and the focus of all intermediate activities are to: (1) investigate the alternatives available for the variety of coatings applied to wood furniture in order to reduce VOC emissions, (2) explore the environmental impacts and costs and any other negative or perceived negative impacts on the quality of the coated parts that could result from specific control technologies and alternative levels of control, and (3) develop a CTG for wood furniture coating. The CTG will provide substantiating information to support a recommendation of how States could write and implement regulations for this industry. In addition, emissions on listed hazardous air pollutants (HAP) will be investigated to determine the magnitude of the emissions and to what extent the emissions are controlled.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
CL-SOLVENT	SOLVENTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
25	FURNITURE AND FIXTURES
251	HOUSEHOLD FURNITURE
2511	WOOD HOUSEHOLD FURNITURE

CL-BIB-0788
Control Techniques Guidelines (CTGs) Development for Automotive Refinishing
Ongoing; draft report due 4/92; complete 6/93
OAQPS/ESD/CPB, Ellen Ducey (919) 541-5408

The purpose of this project is to develop CTGs which address Reasonably Available Control Technologies (RACTs) for control of VOC emissions from automotive refinishing surface preparation, coating applications, and gun-cleaning operations. The CTGs will provide State and local air pollution authorities with an information base for proceeding with their own analyses of RACTs to meet statutory requirements.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
75	AUTO REPAIR, SERVICES, AND PARKING
753	AUTOMOTIVE REPAIR SHOPS
7532	TOP & BODY REPAIR & PAINT SHOPS

CL-BIB-0789
Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts
Ongoing
OAQPS/ESD/CPB, Dave Salman (919) 541-0859

The objectives of this project are to: (1) investigate the alternatives available for the variety of coatings applied to plastic parts in order to reduce VOC emissions, (2) explore the environmental impacts and costs and any other negative or perceived negative impacts on the quality of the coated parts that could result from these specific control technologies, and (3) develop a Control Technology Guideline Document (CTG) for plastic parts coating processes, which will recommend Reasonably Available Control Technology (RACT) for this industry. To date, a total of nine Hazardous Air Pollutants (HAP's) have been identified as being used in plastic parts coatings.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
CL-SOLVENT	SOLVENTS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
100-41-4	ETHYL BENZENE
107-21-1	ETHYLENE GLYCOL
108-10-1	METHYLPENTANONE,4-,2-
108-88-3	TOLUENE
1330-20-7	XYLENE
28	CHEMICALS AND ALLIED PRODUCTS
285	PAINTS AND ALLIED PRODUCTS
2851	PAINTS AND ALLIED PRODUCTS
50-00-0	FORMALDEHYDE
67-56-1	METHANOL
78-93-3	METHYL ETHYL KETONE

CL-BIB-0790
Multiple Chemical Sensitivity Issue Analysis
Ongoing
OAR/OAIAP/IAD, Pauline Johnston (703) 308-8375

This project will assess the current information available on multiple chemical sensitivity and to develop recommendations for further research to address the issue. Work to be performed consists of two parts: (1) the completion of the work of the National Academy of Sciences (NAS) Subcommittee on Immunotoxicology (SI) in evaluating biomarkers for immunotoxicology, including an assessment of potential mechanisms for multiple chemical sensitivity (MCS), and (2) a follow-up workshop to define research needs in the area of MCS. An NAS report is in press, March 1991.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT

CL-BIB-0791
Study of Emission Controls at Tank Vessel Loading Operations
Ongoing
OAQPS/ESD/CPB, David Markwordt (919) 541-0837

This project addresses both VOC's and HAP's associated with marine vessel bulk liquid loading operations. Emissions displaced during loading of tank vessels will be routed to shore-side control units for recovery/destruction. Control requirements are anticipated to provide at least 95% emission reduction.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
44	WATER TRANSPORTATION
449	WATER TRANSPORTATION SERVICES
4491	MARINE CARGO HANDLING

CL-BIB-0792
Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry
Ongoing; draft due 9/15/91; final due 9/15/92
OAQPS/ESD/CPB, Leslie Evans (919) 541-5410

A draft Control Techniques Guideline Document is being prepared to assist States in analyzing and determining Reasonably Available Control Technology (RACT) for stationary sources of VOC emissions located within ozone nonattainment areas. The document will contain a "presumptive norm" for RACT for the specific source category.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMNT GUIDE
28	CHEMICALS AND ALLIED PRODUCTS

CL-BIB-0793
Municipal Waste Combustors NSPS, Phase II
Ongoing
OAQPS/ESD/SDB, Walt Stevenson (919) 541-5264

In accordance with Section 129 of The Clean Air Act Amendments of 1990, Phase II will revise the standards and guidelines promulgated on February 11, 1991. The previously promulgated standards and guidelines will be re-examined and revised to reflect Maximum Achievable Control Technology (MACT) as defined in Section 129. Emission limits will also be specified for mercury, cadmium, and lead. The Phase II rulemaking will also include MWC's with capacities equal to or below 250 tons per day (Phase I covered only units > 250 tons per day). Phase II proposal is expected January 1992, and promulgation in November 1992.

CL-LEAD	LEAD COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
NSPS	NEW SRC PRFRMNCE STD
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS
7439-97-6	MERCURY
7440-43-9	CADMIUM

CL-BIB-0794
Stage I Gasoline Marketing NESHAP
Ongoing
OAQPS/ESD/CPB, Stephen Shedd (919) 541-5397

This project will develop a NESHAP to reduce gasoline vapor emissions that contain about 10 of the 189 hazardous pollutants listed in the Clean Air Act as amended in 1990. Stage I facilities include bulk gasoline terminals and plants, and underground storage tanks at service stations. Stage II gasoline marketing emissions, resulting from the refueling of motor vehicles at service stations, is not included in this action because refueling controls are required under provisions in Titles I & II in the CAA Amendments of 1990.

EPA	ENVIRONMENTAL PROTECTION AGENCY
NESHAP	NATL EMIS STD HAZ AP
100-41-4	ETHYL BENZENE
106-42-3	XYLENE,P-
108-38-3	XYLENE,M-
108-88-3	TOLUENE
110-54-3	HEXANE,N-
1634-04-4	ETHER, TERT-BUTYL METHYL
51	WHOLESALE TRADE-NONDURABLE GOODS
517	PETROLEUM AND PETROLEUM PRODUCTS
5171	PETROLEUM BULK STATIONS & TERMINALS
540-84-1	PENTANE, 2,2,4-TRIMETHYL-
55	AUTOMOTIVE DEALERS & SERVICE STATIONS
554	GASOLINE SERVICE STATIONS
5541	GASOLINE SERVICE STATIONS
71-43-2	BENZENE
8006-61-9	GASOLINE
91-20-3	NAPHTHALENE
95-47-6	XYLENE,O-
98-82-8	CUMENE

CL-BIB-0795
Emissions Assessment in the Wood Products Industry
Ongoing; started 1991
OAQPS/TSD/EIB, Dallas Safriet (919) 541-5371

This project is a cooperative study with the National Council For The Paper Industry for Air and Stream Improvement (NCASI) to gather new information and emission data from the wood products industry. These data will include criteria and toxic pollutant information. The data will provide new or revised sections of AP-42 as well as toxic data bases. This study will address the reconstituted wood products industry, pulp and paper industry, and wood handling facilities. Source tests will be performed where data do not exist. Anyone having emissions data (criteria or toxic) which may be applicable may call the contact above.

CL-VARIOUS	VARIOUS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
SS	SOURCE SAMPLING
24	LUMBER AND WOOD PRODUCTS
242	SAWMILLS AND PLANING MILLS
243	MILLWORK, PLYWOOD & STRUCTURAL MEMBERS
2493	RECONSTITUTED WOOD PRODUCTS
2611	PULP MILLS
2621	PAPER MILLS
2631	PAPERBOARD MILLS

CL-BIB-0796
Update of the Clearinghouse for Inventories and Emission Factors (CHIEF)
Ongoing
OAQPS/TSD/EIB, Anne Pope (919) 541-5373

CHIEF contains air toxic and criteria pollutant emission factors, speciation profiles and pollutant/source associations. CHIEF will be updated annually. The first CD available Aug. 1, 1991 from Anne Pope. Informational brochure available.

EF	EMISSION FACTOR
EPA	ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0797
Development of INTOXX (Integrated Toxic Expected Exceedance Model) System
Ongoing; complete 6/91
OAQPS/TSD/SRAB, Dave Guinnup (919) 541-5368

The INTOXX system is a system of computer programs designed to assist users in analyzing the air quality impacts of intermittent releases of toxic materials from industrial sources. INTOXX consists of three programs: (1) a main program, which comprises the Toxic Ex Ex (TOXX) model that actually carries out the expected exceedance calculations; (2) a special version of the ISCST Gaussian dispersion model (EPA, 1987), which provides the dispersion estimates needed by TOXX; and (3) a control program that assists users in setting up and executing ISCST and TOXX runs. The INTOXX system is a computer program designed to combine data on the concentration of a chemical, on the frequency of release, and on meteorological conditions to signal when a release exceeds recommended health guidelines at various receptor sites. The program is able to handle sources which are characterized by intermittent releases, i.e., ethylene oxide sterilizers.

DM	DISPERSION MODELING
EPA	ENVIRONMENTAL PROTECTION AGENCY
75-21-8	ETHYLENE OXIDE

CL-BIB-0798
Guideline for Dispersion Modeling to Assess the Impacts of Sources of Hazardous Air Pollutants
In preparation
OAQPS/TSD/SRAB, Dave Guinnup (919) 541-5368

This guideline will be a compilation of modeling techniques to estimate ambient concentration impacts of sources of toxic air pollutants. Step-by-step approach incorporates use of conservative screening tables, followed by less conservative calculation techniques, followed by site specific computer simulation techniques. It is going to be provided to assist State and local air pollution control agencies as well as sources of hazardous air pollutants in their early assessment of the impacts of these sources. It is expected that the techniques described herein will be the basis for dispersion modeling associated with the residual risk determination process.

DM	DISPERSION MODELING
EPA	ENVIRONMENTAL PROTECTION AGENCY
RDG	REG DEVELOPMENT GUIDE

CL-BIB-0799
Study of Consumer and Commercial Products as Emission Sources
Ongoing
OAQPS/ESD/ISB, Bruce Moore, (919) 541-5460, Beth Teague (919) 541-5428

The CAA Amendments of 1990 require EPA to conduct a study of VOC emissions from the use of consumer and commercial products. The objectives of the study are (1) to determine the potential of consumer and commercial product VOC emissions to contribute to ozone levels; and (2) to establish criteria for regulating classes or categories of consumer and commercial products under the authority of Section 183 of the Act. Upon completion of the study, and not later than 3 years after enactment (i.e., by November 1993), EPA must submit a report to Congress that documents the results of the study. Given the diverse nature of consumer and commercial products, the study and resultant report to Congress will be separated into several individual studies and corresponding reports. The overall objective of this project is to develop information to be used to prepare the report to Congress.

CL-CONSUMR CONSUMER PRODUCTS
EPA ENVIRONMENTAL PROTECTION AGENCY
SA SOURCE ASSESSMENT

CL-BIB-0800
Prioritisation of Sources of Consumer and Commercial Products
Ongoing
OAQPS/ESD/ISB, Bruce Moore (919) 541-5460

This project involves the development of a report to Congress to be submitted 3 years after passage of the CAA Amendments of 1990. The report will focus on methods to reduce the VOC emissions from consumer and commercial products (CCP) by at least 80% on a reactivity-adjusted basis. Consumer/commercial products will be prioritized into 4 groups for regulation. Regulations for CCP's will be promulgated every 2 years after submittal of the report to Congress until all 4 groups are regulated.

CL-CONSUMR CONSUMER PRODUCTS
EPA ENVIRONMENTAL PROTECTION AGENCY
PRA PRE-REG ASSESSMENT

CL-BIB-0801
Mutagen-Induced Fetal Anomalies Subsequent to Exposure of Mouse Zygotes
Ongoing; started 3/89; complete 3/93
ORD/OHEA/RDTB/HHAG, Gary Kimmel (202) 382-5978

This project's goal is to understand the mechanism of mutagen-induced developmental toxicity. Phase 1 is the determination of dose-response relationships for mutagens of ethylene oxide-induced fetal anomalies near or during conception. Phase 2 will involve understanding the biological basis of mutagen-induced developmental toxicity subsequent to exposure to mouse zygotes.

EPA ENVIRONMENTAL PROTECTION AGENCY
HA HEALTH ASSESSMENT
75-21-8 ETHYLENE OXIDE

CL-BIB-0802
Reproductive and Developmental Toxicity Risk Assessment of Short-Term Exposure to Ethylene Oxide
Ongoing
ORD/OHEA/RDTB/HHAG, Gary Kimmel (202) 382-5978

A risk assessment is being done of the potential for reproductive or developmental toxicity to occur following brief periods of exposure to ethylene oxide. Data obtained from the literature was sufficient to carry out a risk assessment on three studies, all of which used inhalation as the route of exposure. The results indicate that there is a potential for developmental toxicity following brief exposures to ethylene oxide, and that some environmental exposures may significantly exceed the developmental toxicity reference dose for this compound.

EPA ENVIRONMENTAL PROTECTION AGENCY
RA RISK ASSESSMENT
75-21-8 ETHYLENE OXIDE

CL-BIB-0803
Development of the Integrated Model Evaluation System (IMES)
Ongoing
OHEA/EAG, Richard Walentowicz (202) 475-8922

This system will assist users conducting exposure or risk assessments in the selection of appropriate dispersion models. It prompts users with questions about specific modeling parameters they might be concerned about. The system consists of three modules, one each on model selection, validation, and uncertainty. The system describes models, their requirements and applications, and includes bibliographic information. It includes models for all media including air. It allows the user to select a specific model and view its capabilities.

DM DISPERSION MODELING
EPA ENVIRONMENTAL PROTECTION AGENCY

CL-BIB-0804
Ambient Monitoring for Chloroform from a Kraft Pulp Mill in Idaho
Started FY 90; report pending
EPA Region X, Jon Schweiss (206) 553-1690

An ambient monitoring study was conducted at the Potlatch kraft mill in Lewiston, Idaho, in October 1990. The study was a cooperative effort between EPA Region X, the States of Idaho and Washington, Eastern Washington University, and the mill. The study was designed to better characterize the potential health risk from chloroform emissions from kraft pulp mills and included meteorological monitoring and the use of tracers. Analytical data, report, and risk assessment are pending.

AM AMBIENT MONITORING
EPA ENVIRONMENTAL PROTECTION AGENCY
26 PAPER AND ALLIED PRODUCTS
262 PAPER MILLS
2621 PAPER MILLS
67-66-3 CHLOROFORM

CL-BIB-0805
Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington
Started FY 89; final report due FY 91
EPA Region X, Elizabeth Waddell (206) 553-8578

Styrene emissions source testing was conducted at two fiberglass manufacturers during the summer of 1989 by the University of Washington under contract to the Washington Department of Ecology. The emissions data were collected to assess the potential health risk from this industry. The UW emissions data, modelling data, and final report will be available from the Department of Ecology.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SS	SOURCE SAMPLING
100-42-5	STYRENE
32	STONE, CLAY, AND GLASS PRODUCTS
329	MISC. NONMETALLIC MINERAL PRODUCTS
3296	MINERAL WOOL

CL-BIB-0806
Evaluation of Toxic Emissions from a Carbon Thermal Regeneration Facility in Yakima, Washington
Ongoing; started FY 90
EPA Region X, Elizabeth Waddell (206) 553-8578

The Yakima County Clean Air Authority is currently evaluating the toxic emissions from Cameron-Yakima, a facility that regenerates carbon (used to control air emissions from air strippers, dry cleaners, etc.) through a thermal process. The facility is of particular interest because it receives carbon beds from EPA Superfund sites. A report will be developed based on data collected in a source test.

CL-VARIOUS	VARIOUS
CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

CL-BIB-0807
Evaluation of Toxic Emissions from Asphalt Plants that Use Petroleum Contaminated Soils for Aggregate
Ongoing; started FY 91
EPA Region X, Elizabeth Waddell (206) 553-8578

The Alaska Department of Environmental Conservation (ADEC) has conducted an extensive literature search to evaluate the toxic emissions from the use of petroleum contaminated soils as aggregate in asphalt production. The ADEC intends to conduct toxics testing during the 1991 summer season. A report based on the literature search and the results of the testing will be developed.

CL-HCARB	HYDROCARBONS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING

CL-BIB-0808
Evaluation of Formaldehyde and Phenol Emissions from a Thermosetting Resins Facility in South Carolina
Ongoing; started FY 91
EPA Region IV, Lee Page (404) 347-2864

This is a high risk point source project to evaluate formaldehyde and phenol emissions from a thermosetting resins facility in South Carolina. It involves an emissions inventory, dispersion modeling, human exposure modeling, and an assessment of control alternatives.

CT	CNTRL TECHNOLOGY DOC
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
108-95-2	PHENOL
28	CHEMICALS AND ALLIED PRODUCTS
282	PLASTICS MATERIALS AND SYNTHETICS
2821	PLASTICS MATERIALS AND RESINS
50-00-0	FORMALDEHYDE

CL-BIB-0809
Evaluation of Pentachlorophenol and Creosote Emissions from a Wood Treatment Facility in Florida
Ongoing; started FY 91
EPA Region IV, Lee Page (404) 347-2864

This is a high risk point source project to evaluate pentachlorophenol and creosote emissions from a wood treatment facility in Florida. It involves an emissions inventory, dispersion modeling, human exposure modeling, and an assessment of control alternatives.

CT	CNTRL TECHNOLOGY DOC
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
24	LUMBER AND WOOD PRODUCTS
249	MISCELLANEOUS WOOD PRODUCTS
2491	WOOD PRESERVING
8021-39-4	CREOSOTE
87-86-5	PENTACHLOROPHENOL

CL-BIB-0810
Evaluation of Ethylene Oxide Emissions from Small Hospital Sterilizers in Jacksonville, Florida
Ongoing; started FY 91
EPA Region IV, Lee Page (404) 347-2864

This is a high risk point source project to evaluate ethylene oxide emissions from small hospital sterilizers in Jacksonville, Florida. It involves an emissions inventory, dispersion modeling, human exposure modeling, and an assessment of control alternatives.

CT	CNTRL TECHNOLOGY DOC
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
75-21-8	ETHYLENE OXIDE
80	HEALTH SERVICES
806	HOSPITALS

CL-BIB-0811
Evaluation of Fibrous Particulate Matter From a Mineral Products Manufacturing Company in Alabama
Ongoing; started FY 91
EPA Region IV, Lee Page (404) 347-2864

This is a high risk point source project to evaluate fibrous particulate matter from a mineral products manufacturing company in Alabama. It involves an emissions inventory, dispersion modeling, human exposure modeling, and an assessment of control alternatives.

CL-PM	PARTICULATE MATTER
CT	CNTRL TECHNOLOGY DOC
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
32	STONE, CLAY, AND GLASS PRODUCTS
329	MISC. NONMETALLIC MINERAL PRODUCTS
3295	MINERALS, GROUND OR TREATED

CL-BIB-0812
Evaluation of Trichloroethane Emissions from a Large Solvent User in Knoxville, Tennessee
Ongoing; started FY 91
EPA Region IV, Lee Page (404) 347-2864

This is a high risk point source project to evaluate trichloroethane emissions from a large solvent user in Knoxville, Tennessee. It involves an emissions inventory, dispersion modeling, human exposure modeling, and an assessment of control alternatives.

CT	CNTRL TECHNOLOGY DOC
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
71-55-6	TRICHLOROETHANE,1,1,1-

CL-BIB-0813
Severity of Toxic Response Stratification and Modeling Project
Ongoing
OHEA/ECAO-Cin., Richard Hertzberg (513) 569-7582

The goal is to develop procedures for probabilistic modeling of exposure-severity data and to draft guidance for use of such methods for noncancer risk assessment. Other procedures being developed include composite indicators of model acceptability and graphical displays for data and model results. Both Logistic and Weibull models are under investigation, with and without threshold dose parameters.

EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0814
Mechanistic and Empirical Mathematical Models of Toxicity
Ongoing
OHEA/ECAO-Cin., Richard Hertzberg (513) 569-7582

The general goal is to develop statistical procedures for dose-response modeling of noncancer toxicity. The first stage involves determining the numerical properties of the benchmark dose and characterizing all of the steps in the method, including biologic arguments for selection of data set and selection of uncertainty factors. The second stage involves research into mathematical models that explicitly include a threshold dose, and experimental designs that directly estimate the threshold value.

EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0815
A Weight-of-Evidence Strategy for Chemical Interactions
Ongoing
OHEA/ECAO-Cin., Moiz Mumtaz (513) 569-7593

In the real world, people are seldom exposed to single chemicals. However, most of the current health risk assessments are based on single chemical toxicities. Empirical and mechanistic information suggests that mixtures may contain components that enhance or diminish the toxicity of other components. To consistently and clearly evaluate chemical interactions and their role in the expression of toxicity, a binary weight-of-evidence strategy is being developed. The goal of this strategy is to provide risk assessors and regulators a means of summarizing all toxicologic information on interactions such as is summarized in MIXTOX, the Toxic Interaction Database, for use in the risk assessment of chemical mixtures.

EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT

CL-BIB-0816
Health Assessment for Styrene Cancer Update
Ongoing
OHEA/RDTB/HHAG, Charlie Ris (202) 382-5898

A comprehensive assessment of the known health data for carcinogenicity from all exposure routes on styrene is being studied. This is an updated carcinogenicity assessment based on new inhalation and oral carcinogenicity bioassays as well as additional epidemiological studies.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
100-42-5	STYRENE

CL-BIB-0817
Indoor Air Source Characterization Research
Ongoing; complete 9/30/95
AEERL-RTP, Bruce Tichenor (919) 629-2991

To address deficiencies of empirical data on indoor source emissions & sink behavior, this project will: (1) develop source emissions models based on fundamental mass transfer processes, including evaporation, adsorption/desorption, & diffusion; (2) develop models for predicting the adsorptive & desorptive (re-emission) behavior of indoor sinks; (3) develop an understanding of the effect of environmental conditions on biocontaminant viability & growth on indoor surfaces (This understanding of the effect of physical, chemical & environmental variables on emissions from indoor sources will enable predictions of source emissions based on first principles. Likewise, understanding the adsorption/desorption rates & capacities of indoor sinks for various indoor air pollutants, including biocontaminants, will enable quantitative assessment of the impact of sinks (indoor surfaces) on individual exposures.); (4) develop theoretical models to describe source emissions & sink behavior; (5) collect data in small & large environmental test chambers to evaluate & refine the theoretical models & to develop biocontaminant growth parameters, and (6) perform test house studies to provide full-scale validation.

CL-IAP	INDOOR AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0818
Evaluation of Means to Reduce Radon Mitigation Costs
Ongoing
AEERL-RTP, Bruce Henschel (919) 541-4112

Since installation of radon reduction measures is often voluntary by the homeowner, it is important that mitigation systems be as inexpensive as possible to install & operate. This study is intended to provide a systematic evaluation of means to reduce these costs, in an effort to increase the voluntary installation of mitigation systems. The study of exhaust configurations will permit EPA to provide better-supported guidance on the design of the exhausts to reduce homeowner exposure; the exhaust study could also serve to reduce system capital costs in some cases, by providing more rigorous guidance on when grade-level exhaust is permissible, thus eliminating the cost & aesthetic impact of a roof-level stack. The focus in this stage is active soil depressurization (ASD) systems in existing houses. The approach is to conduct a parametric study to identify ASD design/operating conditions which most strongly influence cost and, based upon the parametric study, conduct any necessary experimental studies to permit more rigorous analysis. Future plans are to determine the effect of alternative ASD exhaust configurations on exhaust re-entrainment into the house.

CT	CNTRL TECHNOLOGY DOC
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR
10043-92-2	RADON

CL-BIB-0819
Review of the Health Effects of Silica
Final report due 9/91
Air RISC - ORD/OHEA/ECAO-Cin., Jeff Gift (919) 541-4828

This project is a preliminary review of the health effects of exposure to silica dust. A thorough literature search for both noncancer and cancer effects will be carried out and the literature will be reviewed and summarized. An evaluation of the feasibility of developing an inhalation reference concentration or a cancer unit risk value for silica will result.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
7631-86-9	SILICA

CL-BIB-0820
Short-Term Health Effects and Dose-Response for Hydrogen Chloride
Complete; final report due 9/91
Air RISC - ORD/OHEA/ECAO-RTP, Dan Guth (919) 541-4930

This project developed information on the dose-duration-response for short-term exposure to hydrogen chloride. The toxicological literature was reviewed and analyzed using a new approach commonly known as severity modeling. This approach models the acute effects at several severity levels over a range of concentrations. This project was initiated in order to provide information useful for risk assessment of short-term exposures to hydrogen chloride. A draft report has been prepared and is undergoing review.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
7647-01-0	HYDROGEN CHLORIDE

CL-BIB-0821
Health Effects of Asphalt Fumes
Final report due 9/91
Air RISC - ORD/OHEA/ECAO-RTP, Gary Foureman (919) 541-1183

Several requests have been received for health-related information on emissions from production and various uses of asphalt. The Air RISC initiated a project to review the available information on the health effects of asphalt fumes. A comprehensive literature search for information on cancer and noncancer effects of asphalt fumes will be performed and the information found will be reviewed and critically evaluated.

EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING
8052-42-4	ASPHALT (PETROLEUM) FUMES

CL-BIB-0822
Reference Guide to Odor Thresholds for Hazardous Air Pollutants
Final report due 9/91
Air RISC - ORD/OHEA/ECAO-RTP, Dan Guth (919) 541-4930

Air RISC has initiated a project to characterize the 189 chemicals listed in Title III of the Clean Air Act of 1990 with regard to odor detection thresholds. Such information is envisioned as useful in relating the presence of odor or sensory irritation to the likelihood of serious pulmonary damage or damage to other organs in acute exposure situations. The report will provide background information on the measurement of odor thresholds and on their use in investigating odor complaints and in risk assessment. The available information on odor thresholds for the listed hazardous air pollutants will be reviewed and critically evaluated.

CL-HAPS	TITLE III HAZARDOUS AIR POLLUTANTS
EPA	ENVIRONMENTAL PROTECTION AGENCY
HA	HEALTH ASSESSMENT
RDG	REG DEVELOPMENT GUIDE
TITLE3	CAA TITLE III GUIDE

CL-BIB-0823
Reportable Quantity Adjustments for Lead and Methyl Isocyanate (MIC)
Notice of proposed rulemaking scheduled 12/91
OSWER/OERR/ERD, Barbara Hostage (202) 382-2198

On March 2, 1988, EPA proposed reportable quantity (RQ) adjustments for lead and lead compounds based on potential carcinogenicity. In December 1989, the Science Advisory Board (SAB) supported the evaluation of the RQ adjustment, but recommended reassessment of the chronic toxicity of lead and lead compounds, focusing on adverse neurotoxic effects in children. EPA is preparing a proposed rule to adjust the RQ of these substances based on chronic toxicity. Also, on August 14, 1989, EPA retained the statutory one pound RQ for MIC pending receipt and evaluation of human toxicity data from Bhopal, India. EPA is currently evaluating such data and will propose an RQ adjustment based on chronic toxicity.

CL-LEAD	LEAD COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
ER	EMERGENCY RESPONSE
HA	HEALTH ASSESSMENT
624-83-9	METHYL ISOCYANATE

CL-BIB-0824
Computer Estimation of Human Health Risks from Exposure to Indoor Air Volatile Organic Compounds in Region VI
Started 4/91; data retrieval and analysis in progress
EPA Region VI, Carrie Paige Ellison (214) 655-7223
EPA EMSL-LV, Dr. Joe Behar (702) 798-2216

Simulated assessments of human exposure to indoor air VOC's in Texas will be generated by using benzene as a representative compound. Exposure estimates for human subgroups will be characterized by sex and age group.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
IA	INDOOR AIR

CL-BIB-0825
United States/Mexico Industrial Source Control
Preliminary planning stage
EPA Region VI, Tanya Murray (214) 655-7223

The Industrial Source Control (ISC) Project is part of the Integrated Environmental Plan for the Mexico/United States border area. The primary agencies involved are the EPA and the Secretaria de Desarrollo Urbano Y Ecologia (SEDUE). The goal of this multimedia project is to minimize the degradation of air, water, and land resources by minimizing the use and discharge of hazardous substances to the border environment. This is proposed to be accomplished by assessment of industrial sources and risks, development of mutually supportive regulations, enforcement of regulations, and private initiatives. The initial effort for Region VI will be in the El Paso/Ciudad Juarez area.

EPA	ENVIRONMENTAL PROTECTION AGENCY
PP	POLLUTION PREVENTION
RA	RISK ASSESSMENT
SA	SOURCE ASSESSMENT

CL-BIB-0826
High Risk Point Source Assessment of Oil Refineries in Commerce City, Colorado
Started FY 90; complete FY 91
EPA Region VIII, Laura Lonowski (303) 293-1761

This is an air toxic prioritization for VOC's from two collocated oil refineries in Commerce City, CO.

CL-VOC	VOLATILE ORGANIC COMPOUNDS
EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
29	PETROLEUM AND COAL PRODUCTS
291	PETROLEUM REFINING
2911	PETROLEUM REFINING

CL-BIB-0827
High Risk Point Source Assessment of a Medical Products Manufacturer in Brookings, South Dakota
Started FY 90; complete FY 91
EPA Region VIII, Laura Lonowski (303) 293-1761

This is a toxic air pollutant assessment of a medical products manufacturer, The 3M Company, in Brookings, South Dakota. Ethylene oxide emissions from sterilizers are being assessed during the manufacture of bandages, sterile wraps, and operating room supplies.

EPA	ENVIRONMENTAL PROTECTION AGENCY
SA	SOURCE ASSESSMENT
22	TEXTILE MILL PRODUCTS
221	BROADWOVEN FABRIC MILLS, COTTON
2211	BROADWOVEN FABRIC MILLS, COTTON
38	INSTRUMENTS AND RELATED PRODUCTS
384	MEDICAL INSTRUMENTS AND SUPPLIES
3842	SURGICAL APPLIANCES AND SUPPLIES
75-21-8	ETHYLENE OXIDE

CL-BIB-0828
Incineration 2000
Started 1989; complete 10/91
EPA Region II, Alison Devine (212) 264-9893

This project will evaluate the possible combined impact of incinerators combusting sewage sludge, medical waste, municipal solid waste, and hazardous waste. Emissions from existing and planned incinerators in the NY-NJ metropolitan area will be simulated using the Industrial Source Complex (ISC) air dispersion model. Cumulative impacts on ambient air at all sources will be estimated at various locations. Organic and heavy metal pollutants associated with incineration will be analyzed. Phase I will be an evaluation conducted by EPA Region II, NJDEP, and NYSDEC and will involve compilation of a source/emission inventory and prediction of ambient concentrations. Phase II will involve computation of incremental risk in terms of excess cancer incidences using standard risk assessment methodologies and computation of noncancer risks. The assessment of incremental risk will be done in terms of "excess cancer incidence" associated with scenarios.

CL-CARCIN	CARCINOGENS
CL-METAL	METALLIC COMPOUNDS
CL-ORGANIC	ORGANIC COMPOUNDS
DM	DISPERSION MODELING
EA	EXPOSURE ASSESSMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
RA	RISK ASSESSMENT
SS	SOURCE SAMPLING
49	ELECTRIC, GAS, AND SANITARY SERVICES
495	SANITARY SERVICES
4953	REFUSE SYSTEMS

FL07 01
Odor vs. Toxicity from exposure to styrene from the fiberglass product mfg industry.
PINELLAS COUNTY AIR POLLUTION CONTROL BOARD
Start Date - 10/90 Expected Completion - 12/91
FL-PINELLA E. Fehrmann (813) 530-6522

P.C.A.Q.D. is attempting to characterize styrene odors and relate them to toxicity exposure with the use of a portable gas chromatograph for determination of ambient concentration levels.

EA	EXPOSURE ASSESSMENT
FL07	PINELLAS COUNTY AIR POLLUTION CONTROL BOARD
STATE/LOC	STATE OR LOCAL AGENCY

IN03 1991 1
Evaluation of Crematory Emissions in Indianapolis
INDIANAPOLIS AIR POLLUTION CONTROL DIVISION
Start Date - 05/89 Expected Completion - 10/91
IN-INNAP David Foster (317) 633-5491

Through a high risk point source grant from EPA, four stack tests at several crematories in Indianapolis have been planned. A contractor will be performing the stack tests. The purpose of the stack tests will be to determine if we need to regulate the emissions from crematories.

IN03 INDIANAPOLIS AIR POLLUTION CONTROL DIVISION
STATE/LOC STATE OR LOCAL AGENCY

OH01 AMMON A001
Ambient monitoring in urban and other point source areas of concern.
OHIO EPA, DIV. OF AIR POLLUTION CONTROL
Start Date - Expected Completion -
OH P. Koval/P. Downey (614) 644-2270

Ohio EPA is continuing to do ambient air studies in urban areas in Ohio. We put out annual reports with the conclusions to each study. Also, toxic "hot spots" are being monitored as our resources allow. Special projects are also conducted to monitor specific source categories for priority air toxics. Our research capabilities increase each year as new equipment is purchased and put to use. For examples of Ohio EPA special research projects please refer to the "Agency Documents" section of this database.

AM AMBIENT MONITORING
DM DISPERSION MODELING
EA EXPOSURE ASSESSMENT
EF EMISSION FACTOR
HA HEALTH ASSESSMENT
IA INDOOR AIR
OH01 OHIO EPA, DIV. OF AIR POLLUTION CONTROL
RA RISK ASSESSMENT
SA SOURCE ASSESSMENT
SS SOURCE SAMPLING
STATE/LOC STATE OR LOCAL AGENCY

OH01 DIOXIN D001
SOURCES, OCCURRENCE AND EFFECTS OF DIOXINS AND DIBENZOFURANS IN OHIO'S ENVIRONMENT
OHIO EPA, DIV. OF AIR POLLUTION CONTROL
Start Date - 08/87 Expected Completion - 06/88
OH PAUL KOVAL (614) 481-4310

A LITERATURE SEARCH DETERMINED POTENTIAL SOURCES OF DIOXIN (TCDD) AND DIBENZOFURANS (TCDF) CONTRIBUTING TO THE AMBIENT AIR. SAMPLING WAS CONDUCTED AT 4 SITES IN THE STATE USING MEDIUM VOLUME SAMPLERS AND PUF (POLYURETHANE) FOAM. THE SAMPLES WERE ANALYZED (WITH BLANKS) FOR 15 2,3,7,8 ISOMERS AND TOTAL PENTA-, HEXA-, HEPTA-, AND OCTA- TCDD/TCDFS. THE COGENER PROFILES OF SOURCES WILL BE COMPARED TO OHIO AMBIENT DATA. A HEALTH RISK ASSESSMENT WILL BE PERFORMED USING THE AMBIENT DATA.

AM AMBIENT MONITORING
EA EXPOSURE ASSESSMENT
HA HEALTH ASSESSMENT
OH01 OHIO EPA, DIV. OF AIR POLLUTION CONTROL
RA RISK ASSESSMENT
STATE/LOC STATE OR LOCAL AGENCY
1746-01-6 TETRACHLORODIBENZO-P-DIOXIN,2,3,7,8-
3268-87-9 OCTACHLORODIBENZO-P-DIOXIN
34465-46-8 HEXACHLORODIBENZO-P-DIOXIN,1,2,3,6,7,8-
35822-46-9 HEPTACHLORODIBENZODIOXIN,1,2,3,4,6,7,8-
51207-31-9 TETRACHLORODIBENZOFURAN,2,3,7,8-

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CL-HCARB (HYDROCARBONS)

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Evaluation of Toxic Emissions from Asphalt Plants that Use Petroleum Contaminated Soils for Aggregate (CL-BIB-0807)

CL-IAP (INDOOR AIR POLLUTANTS)

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Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

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CL-ORGANIC (ORGANIC COMPOUNDS)
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The Use of a Dilution Sampling System to Examine the Health Effects of Ambient Air and Temperatures on Municipal Waste Combustion Emissions (CL-BIB-0694)

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CL-SOLVENT (SOLVENTS) (cont.)
Test Method Development for Emissions from Organic Solvent Cleaners (CL-BIB-0664)

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Evaluation of Potential Coating Technologies (CL-BIB-0751)

Alternative Coatings Demonstration Projects (CL-BIB-0752)

Control Technology Guidance (CTG) Development for Offset Lithography (CL-BIB-0785)

Control Techniques Guideline (CTG) for Wood Furniture Coating - National Air Pollution Control Techniques Advisory Committee (NAPCTAC) Preparation (CL-BIB-0787)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

CL-SPORES (FUNGAL SPORES)
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CL-SVOC (SEMIVOLATILE ORGANIC COMPOUNDS)
Field Assessment of Air Emissions from Hazardous Waste Dewatering Operations (CL-BIB-0141)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

The Particle Total Exposure Assessment Methodology (CL-BIB-0460)

A High-Efficiency, High-Volume Compound Annular Denuder Sampler for Phase-Distributed Semi-Volatile Organic Chemicals (CL-BIB-0517)

Sampling Methods for Semi-VOCs in Indoor Air (CL-BIB-0650)

Air Emissions From Dredging (CL-BIB-0666)

Ambient Monitoring of Polar Volatile Organics and Semivolatile Phase-Distributed Organics (CL-BIB-0678)

CL-TIN (ORGANIC TIN COMPOUNDS)
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

CL-VARIOUS (VARIOUS)
SOUTHERN CALIFORNIA AIR QUALITY STUDY (SCAQS) (COMPLETED RESEARCH) (CA01-A6-179-32)

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Develop Methods to Quantify Developmental and Reproductive Toxicity of Air Pollutants (CL-BIB-0114)

CL-VARIOUS (VARIOUS) (cont.)

Particulate and Tissue Analysis Service and Research (CL-BIB-0161)

Medical, Biometric and Industrial Hygiene Study of Emerging Problems (CL-BIB-0230)

Health Hazard Evaluations and Technical Assistance (CL-BIB-0231)

Uranium Miners-Low Dose Investigation (CL-BIB-0244)

Access to National Occupational Hazard Survey Data Base Profile Development (CL-BIB-0252)

Monitoring Human Exposure to Hazardous Air Pollutants (HAPs) (CL-BIB-0291)

CERCLA Designation and Reportable Quantities Regulations (CL-BIB-0354)

Interpretive Rule on Federally Permitted Releases under CERCLA Section 101(10) (CL-BIB-0355)

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Investigation, Documentation and Testing of a Proposed Wet Deposition and Related Algorithms to ISC Models (CL-BIB-0370)

Source Category Parameters (CL-BIB-0391)

The Toxic Interaction Database, MIXTOX (CL-BIB-0392)

Archive and Evaluate Selected Air Toxics Dispersion Models (CL-BIB-0399)

General Quantitative Risk Assessment Guidelines for Noncancer Health Effects (CL-BIB-0448)

1985 Emissions Deposition Modeling of Air Toxics in Lake Michigan Region (CL-BIB-0541)

Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Liver Toxicity: Mechanisms/Interactions (CL-BIB-0592)

Research to Improve Health Risk Assessments (RIHRA) (CL-BIB-0597)

Comprehensive Toxic Air Pollutants Database (CL-BIB-0625)

Voluntary Reduction of Hazardous Air Pollutants (CL-BIB-0631)

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Minnesota Urban Air Toxics Assessment (CL-BIB-0638)

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Mutagenicity and Exposure Assessment of Unvented Kerosene Heaters in Mobile Homes (CL-BIB-0649)

Characterization of Air Toxics Emissions and Deposition in the Great Lakes Area (CL-BIB-0665)

Products of Incomplete Combustion in a Rotary Kiln Simulator (CL-BIB-0693)

The Use of a Dilution Sampling System to Examine the Health Effects of Ambient Air and Temperatures on Municipal Waste Combustion Emissions (CL-BIB-0694)

Ambient Modeling of Toxic Release Inventory (TRI) Air Emissions Data (CL-BIB-0710)

Emissions Assessment in the Wood Products Industry (CL-BIB-0795)

Evaluation of Toxic Emissions from a Carbon Thermal Regeneration Facility in Yakima, Washington (CL-BIB-0806)

CL-VOC (VOLATILE ORGANIC COMPOUNDS)

STUDY TO DETERMINE THE FATE OF BENZENE PRECURSORS IN GASOLINE (COMPLETED RESEARCH) (CA01-A5-128-32)

DEVELOPMENT AND IMPLEMENTATION OF EXPOSURE ASSESSMENT PROCEDURES FOR TOXIC AIR POLLUTANTS IN SEVERAL LOS ANGELES COMMUNITIES (COMPLETED RESEARCH) (CA01-A5-174-33)

Control of Benzene Emissions from Light Duty Vehicles (CA01-A6-204-32)

EMISSIONS OF VOLATILE AND POTENTIALLY TOXIC ORGANIC COMPOUNDS FROM WASTE WATER TREATMENT PLANTS AND COLLECTION SYSTEMS (PHASE II) (CA01-A732-085)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Field Assessment of Air Emissions from Hazardous Waste Dewatering Operations (CL-BIB-0141)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Monitoring Human Exposure to Hazardous Air Pollutants (HAPs) (CL-BIB-0291)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

Dosimetry Models for VOC Hazard Identification (CL-BIB-0350)

Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

Determination of Population Exposure to Mobile Source Pollutants (CL-BIB-0406)

CL-VOC (VOLATILE ORGANIC COMPOUNDS) (cont.)

Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

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Multi-Sorbent Preconcentrator (CL-BIB-0524)

Madison Avenue Formaldehyde Study (CL-BIB-0535)

Staten Island-New Jersey Urban Air Toxics Assessment Program (CL-BIB-0553)

Evaluation of Longpass Fourier Transformation Infra-Red (FTIR) Spectroscopy Remote Sensing Technology for VOCs (CL-BIB-0614)

Staten Island Citizen Odor Episode Monitoring Network (CL-BIB-0632)

Volatile Organic Compounds and Aldehydes in Indoor Air (CL-BIB-0640)

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Test Method Development for VOCs in Consumer Products (CL-BIB-0668)

Health Advisories for 28 Chemicals in Drinking Water (CL-BIB-0676)

Ambient Monitoring of Polar Volatile Organics and Semivolatile Phase-Distributed Organics (CL-BIB-0678)

Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations NSPS (CL-BIB-0680)

Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes NSPS (CL-BIB-0681)

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Equipment Leaks Regulatory Negotiation (CL-BIB-0689)

Radiation Curable Coatings as a Control Option for VOCs from Coatings (CL-BIB-0698)

Corona Destruction as an Air Toxics Control Option (CL-BIB-0703)

Hazardous Organic NESHAP (CL-BIB-0708)

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Volatile Emissions from Stabilization/Solidification of Hazardous Waste (CL-BIB-0712)

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Spray Booth Air Recirculation Demonstration (CL-BIB-0733)

Human Responses to Complex Mixtures of VOCs (CL-BIB-0735)

Animal/In Vitro Responses to Complex Mixtures of VOC's (CL-BIB-0736)

Carpet Dialogue Process: Study of VOC Emissions from Carpets and Associated Products (CL-BIB-0741)

Standards Development for Architectural and Industrial Maintenance (AIM) Surface Coatings (CL-BIB-0786)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry (CL-BIB-0792)

Computer Estimation of Human Health Risks from Exposure to Indoor Air Volatile Organic Compounds in Region VI (CL-BIB-0824)

High Risk Point Source Assessment of Oil Refineries in Commerce City, Colorado (CL-BIB-0826)

STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

CL-WOOD (WOOD SMOKE)

Integrated Air Cancer Project (IACP) (CL-BIB-0115)

Integrated Air Cancer Project (IACP) (CL-BIB-0408)

SURVEY OF WOOD USE FOR RESIDENTIAL WOODBURNING IN SHERIDAN AND LANDER, WYOMING (WY01 PROJECT 001)

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EMISSIONS INVENTORY OF A PIPELINE MARINE TERMINAL (AK01 PROJECT 001)

Control of Benzene Emissions from Light Duty Vehicles (CA01-A6-204-32)

Field Testing and Method Evaluation for Industrial Cooling Towers (CL-BIB-0360)

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Regulatory Investigation of Formaldehyde Emissions from Pressed Wood Products (CL-BIB-0434)

Indoor Air Pollution Mitigation Technology Research (CL-BIB-0476)

Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

New House Evaluation Protocol Project (New HEP) for Radon Reduction in New Construction (CL-BIB-0599)

House Evaluation Program to Evaluate the Cost and Effectiveness of Radon Mitigation Methods (CL-BIB-0603)

Building Site Characterization (CL-BIB-0604)

Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites (CL-BIB-0605)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

Denver Brown Cloud Study #2 (CL-BIB-0623)

Air Toxics Evaluation of A Municipal Waste Combustor in Bellingham, Washington (CL-BIB-0634)

Minnesota Waferboard Emissions Study (CL-BIB-0639)

School Mitigation Demonstrations Program (CL-BIB-0641)

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Radiation Curable Coatings as a Control Option for VOCs from Coatings (CL-BIB-0698)

Corona Destruction as an Air Toxics Control Option (CL-BIB-0703)

Evaluation of Two Innovative Spray Painting Systems (CL-BIB-0714)

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Mobile Source-Related Air Toxics Study (CL-BIB-0728)

Spray Booth Air Recirculation Demonstration (CL-BIB-0733)

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Performance and Durability of Mitigation System Components and Materials (CL-BIB-0756)

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Develop Information Needed For Effective Application of Active Soil Depressurization (ASD) (CL-BIB-0757)

Development of Optimal HVAC Configurations for Radon Mitigation in New Houses (CL-BIB-0759)

Demonstration of Active Subslab Depressurization (ASD) in Schools with Varied Construction, Geology, and Climate (CL-BIB-0761)

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Evaluation of Ventilation for Indoor Air Quality Control (CL-BIB-0764)

Control Technology Guidance (CTG) Development for Offset Lithography (CL-BIB-0785)

Standards Development for Architectural and Industrial Maintenance (AIM) Surface Coatings (CL-BIB-0786)

Control Techniques Guideline (CTG) for Wood Furniture Coating - National Air Pollution Control Techniques Advisory Committee (NAPCTAC) Preparation (CL-BIB-0787)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry (CL-BIB-0792)

Evaluation of Toxic Emissions from a Carbon Thermal Regeneration Facility in Yakima, Washington (CL-BIB-0806)

Evaluation of Formaldehyde and Phenol Emissions from a Thermosetting Resins Facility in South Carolina (CL-BIB-0808)

Evaluation of Pentachlorophenol and Creosote Emissions from a Wood Treatment Facility in Florida (CL-BIB-0809)

Evaluation of Ethylene Oxide Emissions from Small Hospital Sterilizers in Jacksonville, Florida (CL-BIB-0810)

Evaluation of Fibrous Particulate Matter From a Mineral Products Manufacturing Company in Alabama (CL-BIB-0811)

Evaluation of Trichloroethane Emissions from a Large Solvent User in Knoxville, Tennessee (CL-BIB-0812)

Evaluation of Means to Reduce Radon Mitigation Costs (CL-BIB-0818)

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Guide to Reduction of Indoor Radon in Illinois Homes (IL01-871113)

Municipal Incinerator Emission Limits (IL01-871116)

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EVALUATION OF CREMATORY EMISSIONS IN INDIANAPOLIS (IN03IN002)

EVALUATING CARBON TETRACHLORIDE EMISSIONS AT THE VELSICOL CHEMICAL FACILITY IN MEMPHIS, TN (TN0368-D8-0097)

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Monitoring of Dioxin at Dioxin Removal Sites (CL-BIB-0613)

Air Toxics Evaluation of A Municipal Waste Combustor in Bellingham, Washington (CL-BIB-0634)

Low Temperature Formation of Dioxins and Furans from Municipal Waste Combustion (CL-BIB-0691)

Field Testing of Medical Waste Incinerators (MWIs) (CL-BIB-0722)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

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AMBIENT MEASUREMENT AND MODELING OF FORMALDEHYDE CONCENTRATIONS IN THE SOUTH COAST AIR BASIN (CA03-004)

AMBIENT MEASUREMENT & MODELING OF BASINWIDE FORMALDEHYDE CONCENTRATIONS (CA030101)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

Investigation, Documentation and Testing of a Proposed Wet Deposition and Related Algorithms to ISC Models (CL-BIB-0370)

Archive and Evaluate Selected Air Toxics Dispersion Models (CL-BIB-0399)

1985 Emissions Deposition Modeling of Air Toxics in Lake Michigan Region (CL-BIB-0541)

National Institute of Standards and Technology General Indoor Air Pollution Concentration Model (CL-BIB-0586)

Comprehensive Toxic Air Pollutants Database (CL-BIB-0625)

Evaluation of Dense Gas Simulation Models (CL-BIB-0653)

Ambient Modeling of Toxic Release Inventory (TRI) Air Emissions Data (CL-BIB-0710)

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Development of INTOXX (Integrated Toxic Expected Exceedance Model) System (CL-BIB-0797)

Guideline for Dispersion Modeling to Assess the Impacts of Sources of Hazardous Air Pollutants (CL-BIB-0798)

Development of the Integrated Model Evaluation System (IMES) (CL-BIB-0803)

Evaluation of Formaldehyde and Phenol Emissions from a Thermoset-ting Resins Facility in South Carolina (CL-BIB-0808)

Evaluation of Pentachlorophenol and Creosote Emissions from a Wood Treatment Facility in Florida (CL-BIB-0809)

Evaluation of Ethylene Oxide Emissions from Small Hospital Steril-izers in Jacksonville, Florida (CL-BIB-0810)

Evaluation of Fibrous Particulate Matter From a Mineral Products Manufacturing Company in Alabama (CL-BIB-0811)

Evaluation of Trichloroethane Emissions from a Large Solvent User in Knoxville, Tennessee (CL-BIB-0812)

Incineration 2000 (CL-BIB-0828)

STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

Ambient monitoring in urban and other point source areas of concern. (OH01 AMMON A001)

EVALUATING CARBON TETRACHLORIDE EMISSIONS AT THE VELSICOL CHEMICAL FACILITY IN MEMPHIS, TN (TN0368-D8-0097)

WINDVALLEY - DEVELOPMENT OF A NONGUIDELINE AIR STAGNATION DIFFUSION MODEL (WA02 PSAPCA 9)

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Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

School Mitigation Demonstrations Program (CL-BIB-0641)

EDUCATIONAL SERVICES (82) (cont.)

School Facility Managers' Guide to Indoor Air Quality (CL-BIB-0723)

Profile of School Building Characteristics Influencing Radon Entry and Mitigation (CL-BIB-0760)

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ELECTRIC SERVICES (4911)

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Inhalation Study on Hydrogen Bromide (CL-BIB-0675)

Interaction of Liberated Aluminum from a Coal-fired Electric Power Plant with a Hardwood Forest Ecosystem in Southwestern Illinois (IL01-871065)

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EMISSIONS OF VOLATILE AND POTENTIALLY TOXIC ORGANIC COMPOUNDS FROM WASTE WATER TREATMENT PLANTS AND COLLECTION SYSTEMS (PHASE II) (CA01-A732-085)

Field Assessment of Air Emissions from Hazardous Waste Dewatering Operations (CL-BIB-0141)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Investigation, Documentation and Testing of a Proposed Wet Deposition and Related Algorithms to ISC Models (CL-BIB-0370)

Study on the Formation of Aerosols and Particulates from the Incineration of Metals (CL-BIB-0475)

Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites (CL-BIB-0605)

Evaluation of Longpass Fourier Transformation Infra-Red (FTIR) Spectroscopy Remote Sensing Technology for VOCs (CL-BIB-0614)

ATSDR Toxicological Profiles (CL-BIB-0618)

Denver Brown Cloud Study #2 (CL-BIB-0623)

Air Toxics Evaluation of A Municipal Waste Combustor in Bellingham, Washington (CL-BIB-0634)

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Inhalation Study on Hydrogen Bromide (CL-BIB-0675)

Health Advisories for 28 Chemicals in Drinking Water (CL-BIB-0676)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

Municipal Solid Waste Landfill NSPS (CL-BIB-0683)

Low Temperature Formation of Dioxins and Furans from Municipal Waste Combustion (CL-BIB-0691)

Surrogate Performance Indicators for Hazardous Waste Incinerators (CL-BIB-0692)

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Volatile Emissions from Stabilization/Solidification of Hazardous Waste (CL-BIB-0712)

Characterization of Emissions from Combustion of Waste Wood Products (CL-BIB-0715)

Field Testing of Medical Waste Incinerators (MWIs) (CL-BIB-0722)

Characterization of Open Tire Burning Emissions and Exposures (CL-BIB-0730)

National Emission Standards for Hazardous Air Pollutants; Amendment to Benzene Rule for Coke By-Product Recovery Plants (CL-BIB-0747)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

Medical Waste Incinerators NSPS and Existing Sources Guidelines (CL-BIB-0776)

NSPS Development for Medical Waste Incinerators: Pathogen Sampling (CL-BIB-0779)

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Update of the Field Inspection Manual for Municipal Waste Incinerators (CL-BIB-0783)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0793)

Evaluation of Toxic Emissions from a Carbon Thermal Regeneration Facility in Yakima, Washington (CL-BIB-0806)

Incineration 2000 (CL-BIB-0828)

Bacterial Emissions from Incineration of Hospital Waste (IL01-871026)

Waste to Energy Recovery of Refuse as an Alternative to Landfill in Illinois (IL01-871037)

Interaction of Liberated Aluminum from a Coal-fired Electric Power Plant with a Hardwood Forest Ecosystem in Southwestern Illinois (IL01-871065)

Municipal Incinerator Emission Limits (IL01-871116)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT PEERSKILL, N.Y. (NY01002)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT OSWEGO COUNTY, N.Y. (NY01003)

PHASE I RESOURCE RECOVERY-FACILITY EMISSION CHARACTERIZATION STUDY (NY01004)

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National Emission Standards for Hazardous Air Pollutants; Benzene Emissions from Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, (RC01_1-1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

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National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

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School Mitigation Demonstrations Program (CL-BIB-0641)

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ELEMENTARY AND SECONDARY SCHOOLS (8211)
Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

School Mitigation Demonstrations Program (CL-BIB-0641)

School Facility Managers' Guide to Indoor Air Quality (CL-BIB-0723)

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Interpretive Rule on Federally Permitted Releases under CERCLA Section 101(10) (CL-BIB-0355)

Continuous Release Reduced Reporting Requirement (CL-BIB-0702)

Reportable Quantity Adjustments for Lead and Methyl Isocyanate (MIC) (CL-BIB-0823)

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EMISSIONS INVENTORY OF A PIPELINE MARINE TERMINAL (AK01 PROJECT 001)

INDUSTRY TOXIC EMISSIONS DATA COLLECTION (CA030103)

Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

Emissions Data Base for Indoor Air Sources (CL-BIB-0507)

1985 Emissions Deposition Modeling of Air Toxics in Lake Michigan Region (CL-BIB-0541)

Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Denver Brown Cloud Study #2 (CL-BIB-0623)

Northern Wisconsin Boiler Evaluation (CL-BIB-0627)

Volatile Emissions from Stabilization/Solidification of Hazardous Waste (CL-BIB-0712)

Review of HDAT Studies to Gather Data of Interest to Air Regulatory Programs (CL-BIB-0718)

Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions (CL-BIB-0778)

EMISSION FACTOR (EF) (cont.)
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STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

Ambient monitoring in urban and other point source areas of concern. (OH01 AMMON A001)

JORGENSEN STEEL BAGHOUSE CHROMIUM EMISSIONS (WA02 PSAPCA 10)

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ATSDR Toxicological Profiles (CL-BIB-0618)

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Health Assessment Document for Acrolein (CL-BIB-0059)

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Atmospheric Measurements of Trace Volatile Organic Compounds (CL-BIB-0103)

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Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

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Identify and Evaluate Toxic Components of Air Pollution (CL-BIB-0111)

Develop Methods to Quantify Developmental and Reproductive Toxicity of Air Pollutants (CL-BIB-0114)

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Field Assessment of Air Emissions from Hazardous Waste Dewatering Operations (CL-BIB-0141)

Analysis of Acid Precipitation Samples Collected in West Virginia, Delaware, and Maryland (CL-BIB-0147)

Health Assessment Document for Chlorine and Hydrogen Chloride, External Review (CL-BIB-0280)

Development of Methods to Interpret Metabolism Data in Exposure Assessments (CL-BIB-0281)

Health Assessment for Trichloroethylene Cancer Update (CL-BIB-0282)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Indoor Air Quality Research (CL-BIB-0290)

Monitoring Human Exposure to Hazardous Air Pollutants (HAPs) (CL-BIB-0291)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

Environmental Tobacco Smoke (ETS) Policy Guide (CL-BIB-0339)

Environmental Tobacco Smoke (ETS) Lung Cancer and Respiratory Disease Risk Assessment (CL-BIB-0340)

Designing for Good Indoor Air Quality: An Introduction for Design Professionals (CL-BIB-0341)

Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

Refinement of a Detection and Analysis Approach to Volatile Organic Compound Release Characterization Using a Whole Air Technique (CL-BIB-0348)

Dosimetry Models for VOC Hazard Identification (CL-BIB-0350)

CERCLA Designation and Reportable Quantities Regulations (CL-BIB-0354)

Interpretive Rule on Federally Permitted Releases under CERCLA Section 101(10) (CL-BIB-0355)

Field Testing and Method Evaluation for Industrial Cooling Towers (CL-BIB-0360)

Field Testing and Method Evaluation of Chrome Electroplating Plants (CL-BIB-0361)

Integrated Risk Information System (IRIS) (CL-BIB-0363)

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Investigation, Documentation and Testing of a Proposed Wet Deposition and Related Algorithms to ISC Models (CL-BIB-0370)

Health Assessment Document for Mineral Fibers (CL-BIB-0372)

Health Assessment Document for Methyl Isocyanate (CL-BIB-0373)

Health Assessment Document for Toluene Diisocyanate (CL-BIB-0374)

Indoor Air Reference Data Base (CL-BIB-0379)

Chromium Electroplating NESHAP Development (CL-BIB-0384)

Industrial Cooling Towers Chromium NESHAP Development (CL-BIB-0385)

Source Category Parameters (CL-BIB-0391)

The Toxic Interaction Database, MIXTOX (CL-BIB-0392)

Archive and Evaluate Selected Air Toxics Dispersion Models (CL-BIB-0399)

Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

Determination of Population Exposure to Mobile Source Pollutants (CL-BIB-0406)

Integrated Air Cancer Project (IACP) (CL-BIB-0408)

State/EPA Indoor Radon Survey (CL-BIB-0424)

Regulatory Investigation of Formaldehyde Emissions from Pressed Wood Products (CL-BIB-0434)

Chemical Analysis of Particulate Filters (Colorado) (CL-BIB-0445)

General Quantitative Risk Assessment Guidelines for Noncancer Health Effects (CL-BIB-0448)

Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

The Particle Total Exposure Assessment Methodology (CL-BIB-0460)

Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

Compendium of Indoor Air Quality Measurement Methods (CL-BIB-0472)

Temporal Profile Analysis (CL-BIB-0474)

Study on the Formation of Aerosols and Particulates from the Incineration of Metals (CL-BIB-0475)

Indoor Air Pollution Mitigation Technology Research (CL-BIB-0476)

Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

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New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

Emissions Data Base for Indoor Air Sources (CL-BIB-0507)

Chemical Fractionation and Analysis of China Coal Combustion Emission Samples (CL-BIB-0516)

A High-Efficiency, High-Volume Compound Annular Denuder Sampler for Phase-Distributed Semi-Volatile Organic Chemicals (CL-BIB-0517)

VOCs Samplers for Superfund Site Applications (CL-BIB-0520)

Multi-Sorbent Preconcentrator (CL-BIB-0524)

Preparation of a Radon/New Construction Report (CL-BIB-0530)

Madison Avenue Formaldehyde Study (CL-BIB-0535)

Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

1985 Emissions Deposition Modeling of Air Toxics in Lake Michigan Region (CL-BIB-0541)

Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Method Development for Measuring Condensible Particulate Matter (CL-BIB-0548)

Home Builders' Guide to Indoor Air Quality (CL-BIB-0550)

Staten Island-New Jersey Urban Air Toxics Assessment Program (CL-BIB-0553)

Summary Review of Health Effects Associated with Methyl Methacrylate: Health Issue Assessment (CL-BIB-0558)

Summary Review of Health Effects Associated with Phthalic Anhydride: Health Issue Assessment (CL-BIB-0559)

Summary Review of Health Effects Associated with Maleic Anhydride: Health Issue Assessment (CL-BIB-0560)

Summary Review of Health Effects Associated with Organic Phosphorus: Health Issue Assessment (CL-BIB-0562)

Summary Review of Health Effects Associated with Styrene: Health Issue Assessment (CL-BIB-0565)

National Institute of Standards and Technology General Indoor Air Pollution Concentration Model (CL-BIB-0586)

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Liver Toxicity: Mechanisms/Interactions (CL-BIB-0592)

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Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

New House Evaluation Protocol Project (New HEP) for Radon Reduction in New Construction (CL-BIB-0599)

National Residential Radon Survey (CL-BIB-0602)

House Evaluation Program to Evaluate the Cost and Effectiveness of Radon Mitigation Methods (CL-BIB-0603)

Building Site Characterization (CL-BIB-0604)

Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites (CL-BIB-0605)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

National Data Base of Indoor Radon Measurements (CL-BIB-0609)

Monitoring of Dioxin at Dioxin Removal Sites (CL-BIB-0613)

Evaluation of Longpass Fourier Transformation Infra-Red (FTIR) Spectroscopy Remote Sensing Technology for VOCs (CL-BIB-0614)

Denver Brown Cloud Study #2 (CL-BIB-0623)

Study to Determine the Impact of Rush Hour Traffic on Formaldehyde Levels (CL-BIB-0624)

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Voluntary Reduction of Hazardous Air Pollutants (CL-BIB-0631)

Staten Island Citizen Odor Episode Monitoring Network (CL-BIB-0632)

Comprehensive Revision to Asbestos NESHAP Rule (CL-BIB-0633)

Air Toxics Evaluation of A Municipal Waste Combustor in Bellingham, Washington (CL-BIB-0634)

Michigan Compliance Prioritization (Inspection Targeting System) (CL-BIB-0637)

Minnesota Urban Air Toxics Assessment (CL-BIB-0638)

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School Mitigation Demonstrations Program (CL-BIB-0641)

Mutagenicity and Exposure Assessment of Unvented Kerosene Heaters in Mobile Homes (CL-BIB-0649)

Sampling Methods for Semi-VOCs in Indoor Air (CL-BIB-0650)

Mutagenicity of Individual Indoor Air Mixtures (CL-BIB-0651)

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Development of a Most-Exposed Population Approach (CL-BIB-0657)

Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions (CL-BIB-0659)

Health Assessment for Tetrachloroethylene Cancer Update (CL-BIB-0660)

Building Owners' and Managers' Guide to Preventing and Resolving Indoor Air Quality Problems (CL-BIB-0662)

Test Method Development for Emissions from Organic Solvent Cleaners (CL-BIB-0664)

Characterization of Air Toxics Emissions and Deposition in the Great Lakes Area (CL-BIB-0665)

Air Emissions From Dredging (CL-BIB-0666)

Test Method Development for VOCs in Consumer Products (CL-BIB-0668)

Chemical Substitutes for Chlorofluorocarbons (CL-BIB-0672)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

Inhalation Study on Hydrogen Fluoride (CL-BIB-0674)

Inhalation Study on Hydrogen Bromide (CL-BIB-0675)

Health Advisories for 28 Chemicals in Drinking Water (CL-BIB-0676)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

Ambient Monitoring of Polar Volatile Organics and Semivolatile Phase-Distributed Organics (CL-BIB-0678)

Ethylene Oxide Commercial Sterlization/Fumigation NESHAP (CL-BIB-0679)

Synthetic Organic Chemical Manufacturing Industry [SOCMI] Distillation Operations NSPS (CL-BIB-0680)

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Atmospheric Sampling Source for Real-Time Measurement of Polar VOCs (CL-BIB-0687)

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Low Temperature Formation of Dioxins and Furans from Municipal Waste Combustion (CL-BIB-0691)

Surrogate Performance Indicators for Hazardous Waste Incinerators (CL-BIB-0692)

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The Use of a Dilution Sampling System to Examine the Health Effects of Ambient Air and Temperatures on Municipal Waste Combustion Emissions (CL-BIB-0694)

Long Term Radon Monitoring in 12 Maryland Houses Having EPA Installed Radon Reduction Systems (CL-BIB-0695)

Entry and Control of Radon 222 and Thoron in New Mexico Residences (CL-BIB-0696)

Radiation Curable Coatings as a Control Option for VOCs from Coatings (CL-BIB-0698)

Emissions from Combustion of Cabinet and Formica Countertop Scrap (CL-BIB-0701)

Continuous Release Reduced Reporting Requirement (CL-BIB-0702)

Corona Destruction as an Air Toxics Control Option (CL-BIB-0703)

The Effect of Wood Finishing Products on Indoor Air Quality (CL-BIB-0705)

Development of a Chromium Sampling Method (CL-BIB-0706)

Development of a Source Test Method for Hexavalent Chromium (CL-BIB-0707)

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Ambient Modeling of Toxic Release Inventory (TRI) Air Emissions Data (CL-BIB-0710)

Characterization of Emissions from the Simulated Open Burning of Automobile Shredder Fluff (CL-BIB-0711)

Volatile Emissions from Stabilization/Solidification of Hazardous Waste (CL-BIB-0712)

School Evaluation Program to Select Radon Mitigation Strategies (CL-BIB-0713)

Evaluation of Two Innovative Spray Painting Systems (CL-BIB-0714)

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Indoor Air Cluster Project (CL-BIB-0716)

Multi-Chamber Concentration and Exposure Model (MCCEM) (CL-BIB-0717)

Review of HDAT Studies to Gather Data of Interest to Air Regulatory Programs (CL-BIB-0718)

National Radon Potential Map (CL-BIB-0719)

Chromium Electroplating NESHAP (CL-BIB-0720)

Field Testing and Method Evaluation of Waferboard Plants (CL-BIB-0721)

Field Testing of Medical Waste Incinerators (MWIs) (CL-BIB-0722)

School Facility Managers' Guide to Indoor Air Quality (CL-BIB-0723)

Air Toxics Emissions Reduction Initiative (CL-BIB-0724)

Exposure Assessment for Motor Vehicle Air Toxics (CL-BIB-0725)

Atmospheric Transformation of Air Toxics: Benzene, 1,3-Butadiene, and Formaldehyde (CL-BIB-0726)

Motor Vehicle Air Toxics Health Information (CL-BIB-0727)

Mobile Source-Related Air Toxics Study (CL-BIB-0728)

Urban Air Toxics Monitoring Program (CL-BIB-0729)

Characterization of Open Tire Burning Emissions and Exposures (CL-BIB-0730)

Analysis of Air Toxics Monitoring Data to Support Urban Area Source Program under Title III (CL-BIB-0731)

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Emission Characterization Study for Integrated Iron and Steel Production (CL-BIB-0732)

Spray Booth Air Recirculation Demonstration (CL-BIB-0733)

Physicians' Guide to Indoor Air Quality (CL-BIB-0734)

Human Responses to Complex Mixtures of VOCs (CL-BIB-0735)

Animal/In Vitro Responses to Complex Mixtures of VOC's (CL-BIB-0736)

Impact of Mobile Emissions on Noncancer Risk (CL-BIB-0737)

Impact of Mobile Source Emissions on Cancer Risk (CL-BIB-0738)

Study to Improve Assessments of Human Cancer Risk From HAPs (CL-BIB-0739)

Toxics Release Reduction Project (TRRP) (CL-BIB-0740)

Carpet Dialogue Process: Study of VOC Emissions from Carpets and Associated Products (CL-BIB-0741)

Rule-Making for State Permit Programs under Title III of CAA (CL-BIB-0742)

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33/50 Industrial Toxics Project (CL-BIB-0745)

Health Effects Assessment Summary Tables (HEAST) (CL-BIB-0746)

National Emission Standards for Hazardous Air Pollutants; Amendment to Benzene Rule for Coke By-Product Recovery Plants (CL-BIB-0747)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

Secondary Lead Smelters NSPS Review (CL-BIB-0749)

Consumer Product Emissions Prevention Research (CL-BIB-0750)

Evaluation of Potential Coating Technologies (CL-BIB-0751)

Alternative Coatings Demonstration Projects (CL-BIB-0752)

Minimizing Solvent Emissions From Pesticides (CL-BIB-0753)

Research House Investigation of Radon Source Potentials, Entry, Accumulation, and Removal Mechanisms (CL-BIB-0754)

Application of Innovative Pressure Control Techniques in Radon Reduction (CL-BIB-0755)

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Performance and Durability of Mitigation System Components and Materials (CL-BIB-0756)

Develop Information Needed For Effective Application of Active Soil Depressurization (ASD) (CL-BIB-0757)

Field Study of Radon Levels in Pre- and Post-Occupied New Houses (CL-BIB-0758)

Development of Optimal HVAC Configurations for Radon Mitigation in New Houses (CL-BIB-0759)

Profile of School Building Characteristics Influencing Radon Entry and Mitigation (CL-BIB-0760)

Demonstration of Active Subslab Depressurization (ASD) in Schools with Varied Construction, Geology, and Climate (CL-BIB-0761)

Methods Development for Indoor Air Source Characterization (CL-BIB-0762)

Engineering Evaluation of the Indoor Air Biocontaminant Pollution Prevention, Remediation, and Control (CL-BIB-0763)

Evaluation of Ventilation for Indoor Air Quality Control (CL-BIB-0764)

Medical Waste Incinerators NSPS and Existing Sources Guidelines (CL-BIB-0776)

CAA Title III Guidance Documents for State and Local Agencies (CL-BIB-0777)

Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions (CL-BIB-0778)

NSPS Development for Medical Waste Incinerators: Pathogen Sampling (CL-BIB-0779)

Evaluation of Mercury Test Methods for Monitoring Municipal Waste Incinerators (CL-BIB-0780)

Development of the Hazardous Organic NESHAP for Wastewater (CL-BIB-0781)

Background Information for the Pulp and Paper Industry NESHAP Development (CL-BIB-0782)

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Consumer Product Comparative Risk Project (CL-BIB-0784)

Control Technology Guidance (CTG) Development for Offset Lithography (CL-BIB-0785)

Standards Development for Architectural and Industrial Maintenance (AIM) Surface Coatings (CL-BIB-0786)

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Control Techniques Guideline (CTG) for Wood Furniture Coating - National Air Pollution Control Techniques Advisory Committee (NAPCTAC) Preparation (CL-BIB-0787)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

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Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry (CL-BIB-0792)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0793)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

Emissions Assessment in the Wood Products Industry (CL-BIB-0795)

Update of the Clearingbouse for Inventories and Emission Factors (CHIEF) (CL-BIB-0796)

Development of INTOXX (Integrated Toxic Expected Exceedance Model) System (CL-BIB-0797)

Guideline for Dispersion Modeling to Assess the Impacts of Sources of Hazardous Air Pollutants (CL-BIB-0798)

Study of Consumer and Commercial Products as Emission Sources (CL-BIB-0799)

Prioritisation of Sources of Consumer and Commercial Products (CL-BIB-0800)

Mutagen-Induced Fetal Anomalies Subsequent to Exposure of Mouse Zygotes (CL-BIB-0801)

Reproductive and Developmental Toxicity Risk Assessment of Short-Term Exposure to Ethylene Oxide (CL-BIB-0802)

Development of the Integrated Model Evaluation System (IMES) (CL-BIB-0803)

Ambient Monitoring for Chloroform from a Kraft Pulp Mill in Idaho (CL-BIB-0804)

Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington (CL-BIB-0805)

Evaluation of Toxic Emissions from a Carbon Thermal Regeneration Facility in Yakima, Washington (CL-BIB-0806)

Evaluation of Toxic Emissions from Asphalt Plants that Use Petroleum Contaminated Soils for Aggregate (CL-BIB-0807)

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Evaluation of Formaldehyde and Phenol Emissions from a Thermosetting Resins Facility in South Carolina (CL-BIB-0808)

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EVALUATING CARBON TETRACHLORIDE EMISSIONS AT THE VELSICOL CHEMICAL FACILITY IN MEMPHIS, TN (TN0368-D8-0097)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

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SURVEY OF WOOD USE FOR RESIDENTIAL WOODBURNING IN SHERIDAN AND LANDER, WYOMING (WY01 PROJECT 001)

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STUDY TO DETERMINE THE FATE OF BENZENE PRECURSORS IN GASOLINE (COMPLETED RESEARCH) (CA01-A5-128-32)

FATE OF HEXAVALENT CHROMIUM IN THE ATMOSPHERE (COMPLETED RESEARCH) (CA01-A6-096-32)

METHODS DEVELOPMENT FOR ASSESSMENT OF VAPOR PHASE MUTAGENS AND CARCINOGENS IN AMBIENT AIR (COMPLETED RESEARCH) (CA01-A6-174-32)

EVALUATION AND IMPROVEMENT OF METHODS FOR THE SAMPLING AND ANALYSIS OF SELECTED TOXIC AIR CONTAMINANTS (COMPLETED RESEARCH) (CA01-A6-222-53)

EMISSIONS OF VOLATILE AND POTENTIALLY TOXIC ORGANIC COMPOUNDS FROM WASTE WATER TREATMENT PLANTS AND COLLECTION SYSTEMS (PHASE II) (CA01-A732-085)

Hazardous Air Pollutants in the Urban Environment (CL-BIB-0104)

Analysis of Acid Precipitation Samples Collected in West Virginia, Delaware, and Maryland (CL-BIB-0147)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

Field Testing and Method Evaluation for Industrial Cooling Towers (CL-BIB-0360)

SOURCE SAMPLING (SS) (cont.)

Field Testing and Method Evaluation of Chrome Electroplating Plants (CL-BIB-0361)

Study on the Formation of Aerosols and Particulates from the Incineration of Metals (CL-BIB-0475)

Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

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Characterization of Emissions from Combustion of Waste Wood Products (CL-BIB-0715)

Field Testing and Method Evaluation of Waferboard Plants (CL-BIB-0721)

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Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington (CL-BIB-0805)

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Bacterial Emissions from Incineration of Hospital Waste (IL01-871026)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT PEERSKILL, N.Y. (NY01002)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT OSWEGO COUNTY, N.Y. (NY01003)

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JORGENSEN STEEL BAGHOUSE CHROMIUM EMISSIONS (WA02 PSAPCA 10)

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ANALYSIS OF AMBIENT AIR TOXICS DATA FROM POTENTIAL "HOT SPOTS" IN THE SOUTH COAST AIR BASIN. (CA03-001)

IN-VEHICLE AIR TOXICS CHARACTERIZATION STUDY IN THE SOUTH COAST AIR BASIN (CA03-002)

REGIONAL AIR TOXICS AND RISK ASSESSMENT MODEL ENVIRONMENT (CA03-003)

AMBIENT MEASUREMENT AND MODELING OF FORMALDEHYDE CONCENTRATIONS IN THE SOUTH COAST AIR BASIN (CA03-004)

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ENHANCEMENT OF THE REGIONAL AIR TOXICS EXPOSURE AND RISK ASSESMENT MODEL. (CA030100)

AMBIENT MEASUREMENT & MODELING OF BASINWIDE FORMALDEHYDE CONCENTRATIONS (CA030101)

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STUDY TO DETERMINE THE FATE OF BENZENE PRECURSORS IN GASOLINE (COMPLETED RESEARCH) (CA01-A5-128-32)

GENOTOXICITY OF DIESEL EXHAUST PARTICLES AND VAPORS COLLECTED FROM ENGINES WITH AND WITHOUT PARTICULATE TRAP OXIDIZERS (COMPLETED RESEARCH) (CA01-A5-130-33)

DEVELOPMENT AND IMPLEMENTATION OF EXPOSURE ASSESSMENT PROCEDURES FOR TOXIC AIR POLLUTANTS IN SEVERAL LOS ANGELES COMMUNITIES (COMPLETED RESEARCH) (CA01-A5-174-33)

A SURVEY OF AMBIENT CONCENTRATIONS OF SELECTED POLYCYCLIC AROMATIC COMPOUNDS (PAHS) AT VARIOUS LOCATIONS IN CALIFORNIA (COMPLETED RESEARCH) (CA01-A5-185-32)

FATE OF HEXAVALENT CHROMIUM IN THE ATMOSPHERE (COMPLETED RESEARCH) (CA01-A6-096-32)

STUDY OF AMBIENT CONCENTRATIONS OF CHLORINATED DIBENZODIOXINS AND DIBENZOFURANS IN URBAN AREAS IN THE SOUTH COAST AIR BASIN (COMPLETED RESEARCH) (CA01-A6-100-32)

PILOT INVESTIGATION OF INDOOR-OUTDOOR AND PERSONAL PM10 AND ONGOING ASSOCIATED IONIC COMPOUNDS AND MUTAGENIC ACTIVITY (COMPLETED RESEARCH) (CA01-A6-129-33)

METHODS DEVELOPMENT FOR ASSESSMENT OF VAPOR PHASE MUTAGENS AND CARCINOGENS IN AMBIENT AIR (COMPLETED RESEARCH) (CA01-A6-174-32)

ACTIVITY PATTERN STUDY OF CALIFORNIA RESIDENTS (CA01-A6-177-33/UCB)

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CHLORINATED DIBENZODIOXIN AND FURAN RESIDUE LEVELS IN FOOD (COMPLETED RESEARCH) (CA01-A6-197-32)

MEASUREMENTS OF TOXIC EXHAUST EMISSIONS FROM GASOLINE LIGHT-DUTY VEHICLES. (CA01-A6-198-32)

COSTS OF REDUCING AROMATICS AND SULFUR LEVELS IN MOTOR VEHICLE FUELS (COMPLETED RESEARCH) (CA01-A6-199-32)

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EVALUATION AND IMPROVEMENT OF METHODS FOR THE SAMPLING AND ANALYSIS OF SELECTED TOXIC AIR CONTAMINANTS (COMPLETED RESEARCH) (CA01-A6-222-53)

STATE OR LOCAL AGENCY (STATE/LOC) (cont.)

SAMPLING, ANALYSIS AND DATA VALIDATION OF INDOOR CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) (COMPLETED RESEARCH) (CA01-A7-32-106)

LIFETIMES AND FATES OF TOXIC AIR CONTAMINANTS IN CALIFORNIA'S ATMOSPHERE. (CA01-A7-32-107)

HYDROXYNITRO-PAH AND OTHER PAH DERIVATIVES IN CALIFORNIA'S ATMOSPHERE AND THEIR CONTRIBUTION TO AMBIENT MUTAGENICITY. (CA01-A7-32-154)

EMISSIONS OF VOLATILE AND POTENTIALLY TOXIC ORGANIC COMPOUNDS FROM WASTE WATER TREATMENT PLANTS AND COLLECTION SYSTEMS (PHASE II) (CA01-A732-085)

ANALYSIS OF AMBIENT AIR TOXICS DATA FROM POTENTIAL "HOT SPOTS" IN THE SOUTH COAST AIR BASIN. (CA03-001)

IN-VEHICLE AIR TOXICS CHARACTERIZATION STUDY IN THE SOUTH COAST AIR BASIN (CA03-002)

REGIONAL AIR TOXICS AND RISK ASSESSMENT MODEL ENVIRONMENT (CA03-003)

AMBIENT MEASUREMENT AND MODELING OF FORMALDEHYDE CONCENTRATIONS IN THE SOUTH COAST AIR BASIN (CA03-004)

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AMBIENT MEASUREMENT & MODELING OF BASINWIDE FORMALDEHYDE CONCENTRATIONS (CA030101)

AIR TOXICS MICROENVIRONMENTS EXPOSURE & MONITORING STUDY (CA030102)

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ASARCO-GLOBE, PRIMARY CADMIUM REFINERY ASSESSMENT OF HEALTH RISK (CO01001HRPSASARCO)

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Odor vs. Toxicity from exposure to styrene from the fiberglass product mfg industry. (FL07 01)

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Bacterial Emissions from Incineration of Hospital Waste (IL01-871026)

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Interaction of Liberated Aluminum from a Coal-fired Electric Power Plant with a Hardwood Forest Ecosystem in Southwestern Illinois (IL01-871065)

Guide to Reduction of Indoor Radon in Illinois Homes (IL01-871113)

Municipal Incinerator Emission Limits (IL01-871116)

Review of State of the Art of Measuring Environmental Benefits (IL01-881033)

An Anlaysis of Industrial Reporting Requirements for Toxic Materials: A Mass Balance Accounting (IL01-881128)

Air Monitoring Survey Design for Air Toxic Pollutants in an Urban Environment (IL01-881145)

Evaluation of Crematory Emissions in Indianapolis (IN03 1991 1)

EVALUATION OF CREMATORY EMISSIONS IN INDIANAPOLIS (IN03-01)

EVALUATION OF CREMATORY EMISSIONS IN INDIANAPOLIS (IN03IN002)

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HIGH RISK POINT SOURCE STUDY ON METHYLENE CHLORIDE (MO01 HRPS1)

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THE TOTAL HUMAN ENVIRONMENTAL EXPOSURE STUDY (THEES) TO BENZO(A) PYRENE (NJ01PROJECT 29529)

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STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT PEERSKILL, N.Y. (NY01002)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT OSWEGO COUNTY, N.Y. (NY01003)

PHASE I RESOURCE RECOVERY-FACILITY EMISSION CHARACTERIZATION STUDY (NY01004)

STATE OR LOCAL AGENCY (STATE/LOC) (cont.)
Ambient monitoring in urban and other point source areas of concern. (OH01 AMMON A001)

SOURCES, OCCURRENCE AND EFFECTS OF DIOXINS AND DIBENZOFURANS IN OHIO'S ENVIRONMENT (OH01 DIOXIN D001)

RADON CONCENTRATION STUDY - TOLEDO AREA (OH04 RADON STUDY '86)

ETHYLENE OXIDE REGULATIONS (OH04ETO)

OKLAHOMA AIR POLLUTION CONTROL REGULATION 2.3(REVISION) (OK01PROJECT 2.3)

FIELD AND SLASH BURNING PESTICIDE IMPACT STUDY (OR01 PROJECT 001)

ASSESSMENT OF A SYNTHETIC RUBBER COATING PLANT FOR LOCALIZED HIGH RISK IMPACTS (PA0289-1-HRPS)

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SURVEY OF WOOD USE FOR RESIDENTIAL WOODBURNING IN SHERIDAN AND LANDER, WYOMING (WY01 PROJECT 001)

STATE OR LOCAL AGENCY (STATE/LOC) (cont.)
ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

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STEAM AND AIR-CONDITIONING SUPPLY (496)
RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT PEERSKILL, N.Y. (NY01002)

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PHASE I RESOURCE RECOVERY-FACILITY EMISSION CHARACTERIZATION STUDY (NY01004)

STEAM AND AIR-CONDITIONING SUPPLY (4961)
RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT PEERSKILL, N.Y. (NY01002)

RESULTS FROM THE ANALYSIS OF MSW INCINERATOR TESTING AT OSWEGO COUNTY, N.Y. (NY01003)

PHASE I RESOURCE RECOVERY-FACILITY EMISSION CHARACTERIZATION STUDY (NY01004)

STEEL WIRE AND RELATED PRODUCTS (3315)
Mortality Study of Workers Exposed to Halowax (CL-BIB-0410)

STONE, CLAY, AND GLASS PRODUCTS (32)
Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

Comprehensive Revision to Asbestos NESHAP Rule (CL-BIB-0633)

Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington (CL-BIB-0805)

Evaluation of Fibrous Particulate Matter From a Mineral Products Manufacturing Company in Alabama (CL-BIB-0811)

STYRENE (100-42-5)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

Summary Review of Health Effects Associated with Styrene: Health Issue Assessment (CL-BIB-0565)

ATSDR Toxicological Profiles (CL-BIB-0618)

Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington (CL-BIB-0805)

Health Assessment for Styrene Cancer Update (CL-BIB-0816)

STYRENE (100-42-5) (cont.)
DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

SUGAR AND CONFECTIONERY PRODUCTS (206)
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SULFUR DIOXIDE (7446-09-5)
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THE ARS PROJECT (AGGREGATE REDUCED SULFUR) (FL02ARS0002)

SULFURIC ACID (7664-93-9)
ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

SULFURYL FLUORIDE (2699-79-8)
Study of Methyl Bromide and Sulfuryl Fluoride Applicators (CL-BIB-0775)

SURGICAL APPLIANCES AND SUPPLIES (3842)
High Risk Point Source Assessment of a Medical Products Manufacturer in Brookings, South Dakota (CL-BIB-0827)

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TAXICABS (4121)
Control of Benzene Emissions from Light Duty Vehicles (CA01-A6-204-32)

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TETRACHLOROBENZENE,1,2,4,5- (95-94-3)
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TETRACHLORODIBENZO-P-DIOXIN,2,3,7,8- (1746-01-6)
SOURCES, OCCURRENCE AND EFFECTS OF DIOXINS AND DIBENZOFURANS IN OHIO'S ENVIRONMENT (OH01 DIOXIN D001)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

TETRACHLORODIBENZOFURAN,2,3,7,8- (51207-31-9)
SOURCES, OCCURRENCE AND EFFECTS OF DIOXINS AND DIBENZOFURANS IN OHIO'S ENVIRONMENT (OH01 DIOXIN D001)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

TETRACHLOROETHANE (25322-20-7)
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TETRACHLOROETHANE,1,1,1,2- (630-20-6)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

TETRACHLOROETHANE,1,1,2,2- (79-34-5)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

TETRACHLOROETHYLENE (127-18-4)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

Dry Cleaning NESHAP (CL-BIB-0630)

Health Assessment for Tetrachloroethylene Cancer Update (CL-BIB-0660)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

AMBIENT ORGANICS IN OLNEYVILLE, RI AIR (RI01002)

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High Risk Point Source Assessment of a Medical Products Manufacturer in Brookings, South Dakota (CL-BIB-0827)

THALLIUM, SOLUBLE COMPOUNDS, AS TL (7440-28-0)
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TITLE III HAZARDOUS AIR POLLUTANTS (CL-HAPS)
Atmospheric Measurements of Trace Volatile Organic Compounds (CL-BIB-0103)

Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Characterize Genotoxic Dose-Response Relationships (CL-BIB-0110)

TITLE III HAZARDOUS AIR POLLUTANTS (CL-HAPS) (cont.)
Identify and Evaluate Toxic Components of Air Pollution (CL-BIB-0111)

Health Effects Assessment Summary Tables (HEAST) (CL-BIB-0746)

Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions (CL-BIB-0778)

Development of the Hazardous Organic NESHAP for Wastewater (CL-BIB-0781)

Background Information for the Pulp and Paper Industry NESHAP Development (CL-BIB-0782)

Control Techniques Guideline (CTG) for Wood Furniture Coating - National Air Pollution Control Techniques Advisory Committee (NAPCTAC) Preparation (CL-BIB-0787)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

Reference Guide to Odor Thresholds for Hazardous Air Pollutants (CL-BIB-0822)

TOLEDO ENVIRONMENTAL SERVICES DIVISION (OH04)
RADON CONCENTRATION STUDY - TOLEDO AREA (OH04 RADON STUDY '86)

ETHYLENE OXIDE REGULATIONS (OH04ETO)

TOLUENE (108-88-3)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Refinement of a Detection and Analysis Approach to Volatile Organic Compound Release Characterization Using a Whole Air Technique (CL-BIB-0348)

Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

33/50 Industrial Toxics Project (CL-BIB-0745)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

ASSESSMENT OF A SYNTHETIC RUBBER COATING PLANT FOR LOCALIZED HIGH RISK IMPACTS (PA0289-1-HRPS)

TOLUENE (108-88-3) (cont.)
ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

TOLUENE DIISOCYANATE (26471-62-5)
Mortality Study of Workers Exposed to Toluene Diisocyanate (CL-BIB-0243)

TOLUENE-2,4-DIISOCYANATE (584-84-9)
Health Assessment Document for Toluene Diisocyanate (CL-BIB-0374)

TOP & BODY REPAIR & PAINT SHOPS (7532)
Alternative Coatings Demonstration Projects (CL-BIB-0752)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

TOXICITY TESTING (TT)
PILOT INVESTIGATION OF INDOOR-OUTDOOR AND PERSONAL PM10 AND ONGOING ASSOCIATED IONIC COMPOUNDS AND MUTAGENIC ACTIVITY (COMPLETED RESEARCH) (CA01-A6-129-33)

METHODS DEVELOPMENT FOR ASSESSMENT OF VAPOR PHASE MUTAGENS AND CARCINOGENS IN AMBIENT AIR (COMPLETED RESEARCH) (CA01-A6-174-32)

Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Characterize Genotoxic Dose-Response Relationships (CL-BIB-0110)

Identify and Evaluate Toxic Components of Air Pollution (CL-BIB-0111)

Develop Methods to Quantify Developmental and Reproductive Toxicity of Air Pollutants (CL-BIB-0114)

Particulate and Tissue Analysis Service and Research (CL-BIB-0161)

Evaluation of Mesothelioma Production by Asbestos Substitutes (CL-BIB-0162)

Vanadium Pentoxide - NTP Chemical Management (CL-BIB-0181)

Development of Methods to Interpret Metabolism Data in Exposure Assessments (CL-BIB-0281)

Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

Dosimetry Models for VOC Hazard Identification (CL-BIB-0350)

Chemical Fractionation and Analysis of China Coal Combustion Emission Samples (CL-BIB-0516)

Liver Toxicity: Mechanisms/Interactions (CL-BIB-0592)

Inhalation Study on Hydrogen Fluoride (CL-BIB-0674)

TOXICITY TESTING (TT) (cont.)
Inhalation Study on Hydrogen Bromide (CL-BIB-0675)

Impact of Mobile Emissions on Noncancer Risk (CL-BIB-0737)

Dose Rate Inhalation Study of Ethylene Oxide (CL-BIB-0765)

Assays of Respirable Genotoxic Particulates (CL-BIB-0766)

An Ongoing Survey of Genetic Toxicity of Air Particulates (IL01-001)

EVALUATION OF CREMATORY EMISSIONS IN INDIANAPOLIS (IN03-01)

TRICHLOROBENZENE,1,2,3- (87-61-6)
ATSDR Toxicological Profiles (CL-BIB-0618)

TRICHLOROBENZENE,1,2,4- (120-82-1)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

TRICHLOROBENZENE,1,3,5- (108-70-3)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

TRICHLOROETHANE,1,1,1- (71-55-6)
Refinement of a Detection and Analysis Approach to Volatile Organic Compound Release Characterization Using a Whole Air Technique (CL-BIB-0348)

Dry Cleaning NESHAP (CL-BIB-0630)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

33/50 Industrial Toxics Project (CL-BIB-0745)

Evaluation of Trichloroethane Emissions from a Large Solvent User in Knoxville, Tennessee (CL-BIB-0812)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

AMBIENT ORGANICS IN OLNEYVILLE, RI AIR (RI01002)

TRICHLOROETHANE,1,1,2- (79-00-5)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

TRICHLOROETHYLENE (79-01-6)
Health Assessment for Trichloroethylene Cancer Update (CL-BIB-0282)

TRICHLOROETHYLENE (79-01-6) (cont.)
Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

AMBIENT ORGANICS IN OLNEYVILLE, RI AIR (RI01002)

TRICHLOROPHENOXYACETIC ACID,2,4,5- (93-76-5)
Monitoring of Dioxin at Dioxin Removal Sites (CL-BIB-0613)

TRICHLOROPROPANE,1,2,3- (96-18-4)
ATSDR Toxicological Profiles (CL-BIB-0618)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

URANIUM-RADIUM-VANADIUM ORES (1094)
Uranium Miners-Low Dose Investigation (CL-BIB-0244)

VA DEPARTMENT OF AIR POLLUTION CONTROL (VA01)
REGULATORY REVISION CONCERNING EMISSION STANDARDS FOR NON-CRITERIA POLLUTANTS (VA011)

VANADIUM (7440-62-2)
ATSDR Toxicological Profiles (CL-BIB-0618)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

VANADIUM PENTOXIDE (1314-62-1)
Vanadium Pentoxide - NTP Chemical Management (CL-BIB-0181)

VARIOUS (CL-VARIOUS)
SOUTHERN CALIFORNIA AIR QUALITY STUDY (SCAQS) (COMPLETED RESEARCH) (CA01-A6-179-32)

Hazardous Air Pollutants in the Urban Environment (CL-BIB-0104)

Develop Methods to Quantify Developmental and Reproductive Toxicity of Air Pollutants (CL-BIB-0114)

Particulate and Tissue Analysis Service and Research (CL-BIB-0161)

Medical, Biometric and Industrial Hygiene Study of Emerging Problems (CL-BIB-0230)

Health Hazard Evaluations and Technical Assistance (CL-BIB-0231)

Uranium Miners-Low Dose Investigation (CL-BIB-0244)

Access to National Occupational Hazard Survey Data Base Profile Development (CL-BIB-0252)

VARIOUS (CL-VARIOUS) (cont.)
Monitoring Human Exposure to Hazardous Air Pollutants (HAPs) (CL-BIB-0291)

CERCLA Designation and Reportable Quantities Regulations (CL-BIB-0354)

Interpretive Rule on Federally Permitted Releases under CERCLA Section 101(10) (CL-BIB-0355)

Integrated Risk Information System (IRIS) (CL-BIB-0363)

Investigation, Documentation and Testing of a Proposed Wet Deposition and Related Algorithms to ISC Models (CL-BIB-0370)

Source Category Parameters (CL-BIB-0391)

The Toxic Interaction Database, MIXTOX (CL-BIB-0392)

Archive and Evaluate Selected Air Toxics Dispersion Models (CL-BIB-0399)

General Quantitative Risk Assessment Guidelines for Noncancer Health Effects (CL-BIB-0448)

1985 Emissions Deposition Modeling of Air Toxics in Lake Michigan Region (CL-BIB-0541)

Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Liver Toxicity: Mechanisms/Interactions (CL-BIB-0592)

Research to Improve Health Risk Assessments (RIHRA) (CL-BIB-0597)

Comprehensive Toxic Air Pollutants Database (CL-BIB-0625)

Voluntary Reduction of Hazardous Air Pollutants (CL-BIB-0631)

Michigan Compliance Prioritization (Inspection Targeting System) (CL-BIB-0637)

Minnesota Urban Air Toxics Assessment (CL-BIB-0638)

Minnesota Waferboard Emissions Study (CL-BIB-0639)

Mutagenicity and Exposure Assessment of Unvented Kerosene Heaters in Mobile Homes (CL-BIB-0649)

Characterization of Air Toxics Emissions and Deposition in the Great Lakes Area (CL-BIB-0665)

Products of Incomplete Combustion in a Rotary Kiln Simulator (CL-BIB-0693)

The Use of a Dilution Sampling System to Examine the Health Effects of Ambient Air and Temperatures on Municipal Waste Combustion Emissions (CL-BIB-0694)

VARIOUS (CL-VARIOUS) (cont.)
Ambient Modeling of Toxic Release Inventory (TRI) Air Emissions Data (CL-BIB-0710)

Emissions Assessment in the Wood Products Industry (CL-BIB-0795)

Evaluation of Toxic Emissions from a Carbon Thermal Regeneration Facility in Yakima, Washington (CL-BIB-0806)

VINYL ACETATE (108-05-4)
ATSDR Toxicological Profiles (CL-BIB-0618)

VINYL CHLORIDE (75-01-4)
Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

Municipal Solid Waste Landfill NSPS (CL-BIB-0683)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

VOLATILE ORGANIC COMPOUNDS (CL-VOC)
STUDY TO DETERMINE THE FATE OF BENZENE PRECURSORS IN GASOLINE (COMPLETED RESEARCH) (CA01-A5-128-32)

DEVELOPMENT AND IMPLEMENTATION OF EXPOSURE ASSESSMENT PROCEDURES FOR TOXIC AIR POLLUTANTS IN SEVERAL LOS ANGELES COMMUNITIES (COMPLETED RESEARCH) (CA01-A5-174-33)

Control of Benzene Emissions from Light Duty Vehicles (CA01-A6-204-32)

EMISSIONS OF VOLATILE AND POTENTIALLY TOXIC ORGANIC COMPOUNDS FROM WASTE WATER TREATMENT PLANTS AND COLLECTION SYSTEMS (PHASE II) (CA01-A732-085)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Field Assessment of Air Emissions from Hazardous Waste Dewatering Operations (CL-BIB-0141)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Monitoring Human Exposure to Hazardous Air Pollutants (HAPs) (CL-BIB-0291)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

Dosimetry Models for VOC Hazard Identification (CL-BIB-0350)

Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

Determination of Population Exposure to Mobile Source Pollutants (CL-BIB-0406)

Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

VOLATILE ORGANIC COMPOUNDS (CL-VOC) (cont.)
Temporal Profile Analysis (CL-BIB-0474)

New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

VOCs Samplers for Superfund Site Applications (CL-BIB-0520)

Multi-Sorbent Preconcentrator (CL-BIB-0524)

Madison Avenue Formaldehyde Study (CL-BIB-0535)

Staten Island-New Jersey Urban Air Toxics Assessment Program (CL-BIB-0553)

Evaluation of Longpass Fourier Transformation Infra-Red (FTIR) Spectroscopy Remote Sensing Technology for VOCs (CL-BIB-0614)

Staten Island Citizen Odor Episode Monitoring Network (CL-BIB-0632)

Volatile Organic Compounds and Aldehydes in Indoor Air (CL-BIB-0640)

Air Emissions From Dredging (CL-BIB-0666)

Test Method Development for VOCs in Consumer Products (CL-BIB-0668)

Health Advisories for 28 Chemicals in Drinking Water (CL-BIB-0676)

Ambient Monitoring of Polar Volatile Organics and Semivolatile Phase-Distributed Organics (CL-BIB-0678)

Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations NSPS (CL-BIB-0680)

Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes NSPS (CL-BIB-0681)

Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Processes NSPS (CL-BIB-0682)

Atmospheric Sampling Source for Real-Time Measurement of Polar VOCs (CL-BIB-0687)

Equipment Leaks Regulatory Negotiation (CL-BIB-0689)

Radiation Curable Coatings as a Control Option for VOCs from Coatings (CL-BIB-0698)

Corona Destruction as an Air Toxics Control Option (CL-BIB-0703)

Hazardous Organic NESHAP (CL-BIB-0708)

Volatile Emissions from Stabilization/Solidification of Hazardous Waste (CL-BIB-0712)

Evaluation of Two Innovative Spray Painting Systems (CL-BIB-0714)

Spray Booth Air Recirculation Demonstration (CL-BIB-0733)

VOLATILE ORGANIC COMPOUNDS (CL-VOC) (cont.)
Human Responses to Complex Mixtures of VOCs (CL-BIB-0735)

Animal/In Vitro Responses to Complex Mixtures of VOC's (CL-BIB-0736)

Carpet Dialogue Process: Study of VOC Emissions from Carpets and Associated Products (CL-BIB-0741)

Standards Development for Architectural and Industrial Maintenance (AIM) Surface Coatings (CL-BIB-0786)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry (CL-BIB-0792)

Computer Estimation of Human Health Risks from Exposure to Indoor Air Volatile Organic Compounds in Region VI (CL-BIB-0824)

High Risk Point Source Assessment of Oil Refineries in Commerce City, Colorado (CL-BIB-0826)

STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

VT DEPT. ENVIRONMENTAL CONSERVATION, AIR POLLUTION CNT. DIV. (VT01)
RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

WATER SUPPLY (494)
Health Advisories for 28 Chemicals in Drinking Water (CL-BIB-0676)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

WATER SUPPLY (4941)
Health Advisories for 28 Chemicals in Drinking Water (CL-BIB-0676)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

WATER TRANSPORTATION (44)
Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

WATER TRANSPORTATION SERVICES (449)
Study of Emission Controls at Tank Vessel Loading Operations (CL-BIB-0791)

WHOLESALE TRADE-NONDURABLE GOODS (51)
Ethylene Oxide Mortality Study - NCI (CL-BIB-0224)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

WOOD HOUSEHOLD FURNITURE (2511)
Control Techniques Guideline (CTG) for Wood Furniture Coating - National Air Pollution Control Techniques Advisory Committee (NAPCTAC) Preparation (CL-BIB-0787)

WOOD KITCHEN CABINETS (2434)
Emissions from Combustion of Cabinet and Formica Countertop Scrap (CL-BIB-0701)

WOOD PRESERVING (2491)
Evaluation of Pentachlorophenol and Creosote Emissions from a Wood Treatment Facility in Florida (CL-BIB-0809)

WOOD SMOKE (CL-WOOD)
Integrated Air Cancer Project (IACP) (CL-BIB-0115)

Integrated Air Cancer Project (IACP) (CL-BIB-0408)

SURVEY OF WOOD USE FOR RESIDENTIAL WOODBURNING IN SHERIDAN AND LANDER, WYOMING (WY01 PROJECT 001)

WY DEPT. OF ENV. QUALITY, AIR QUALTIY DIV. (WY01)
SURVEY OF WOOD USE FOR RESIDENTIAL WOODBURNING IN SHERIDAN AND LANDER, WYOMING (WY01 PROJECT 001)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

XYLENE (1330-20-7)
33/50 Industrial Toxics Project (CL-BIB-0745)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

XYLENE,M- (108-38-3)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

XYLENE,O- (95-47-6)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

XYLENE,P- (106-42-3)
Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

ZINC (7440-66-6)
Heavy Metal Sampling (CL-BIB-0626)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

10 (METAL MINING)
Uranium Miners-Low Dose Investigation (CL-BIB-0244)

100-02-7 (NITROPHENOL,P-)
ATSDR Toxicological Profiles (CL-BIB-0618)

100-41-4 (ETHYL BENZENE)
Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

100-42-5 (STYRENE)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

Summary Review of Health Effects Associated with Styrene: Health Issue Assessment (CL-BIB-0565)

ATSDR Toxicological Profiles (CL-BIB-0618)

Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington (CL-BIB-0805)

Health Assessment for Styrene Cancer Update (CL-BIB-0816)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

100-44-7 (BENZYL CHLORIDE)
ATSDR Toxicological Profiles (CL-BIB-0618)

10028-15-6 (OZONE)
Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

10035-10-6 (HYDROGEN BROMIDE)
Inhalation Study on Hydrogen Bromide (CL-BIB-0675)

10043-92-2 (RADON)
Uranium Miners-Low Dose Investigation (CL-BIB-0244)

State/EPA Indoor Radon Survey (CL-BIB-0424)

Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

Preparation of a Radon/New Construction Report (CL-BIB-0530)

Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

10043-92-2 (RADON) (cont.)
New House Evaluation Protocol Project (New HEP) for Radon Reduction in New Construction (CL-BIB-0599)

National Residential Radon Survey (CL-BIB-0602)

House Evaluation Program to Evaluate the Cost and Effectiveness of Radon Mitigation Methods (CL-BIB-0603)

Building Site Characterization (CL-BIB-0604)

Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites (CL-BIB-0605)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

National Data Base of Indoor Radon Measurements (CL-BIB-0609)

School Mitigation Demonstrations Program (CL-BIB-0641)

Long Term Radon Monitoring in 12 Maryland Houses Having EPA Installed Radon Reduction Systems (CL-BIB-0695)

Entry and Control of Radon 222 and Thoron in New Mexico Residences (CL-BIB-0696)

School Evaluation Program to Select Radon Mitigation Strategies (CL-BIB-0713)

National Radon Potential Map (CL-BIB-0719)

Research House Investigation of Radon Source Potentials, Entry, Accumulation, and Removal Mechanisms (CL-BIB-0754)

Application of Innovative Pressure Control Techniques in Radon Reduction (CL-BIB-0755)

Performance and Durability of Mitigation System Components and Materials (CL-BIB-0756)

Develop Information Needed For Effective Application of Active Soil Depressurization (ASD) (CL-BIB-0757)

Field Study of Radon Levels in Pre- and Post-Occupied New Houses (CL-BIB-0758)

Development of Optimal HVAC Configurations for Radon Mitigation in New Houses (CL-BIB-0759)

Profile of School Building Characteristics Influencing Radon Entry and Mitigation (CL-BIB-0760)

Demonstration of Active Subslab Depressurization (ASD) in Schools with Varied Construction, Geology, and Climate (CL-BIB-0761)

Evaluation of Means to Reduce Radon Mitigation Costs (CL-BIB-0818)

10043-92-2 (RADON) (cont.)
Guide to Reduction of Indoor Radon in Illinois Homes (IL01-871113)

RADON CONCENTRATION STUDY - TOLEDO AREA (OH04 RADON STUDY '86)

10061-01-5 (DICHLOROPROPENE,1,3-,1-,CIS-)
ATSDR Toxicological Profiles (CL-BIB-0618)

10061-02-6 (DICHLOROPROPENE,1,3-,TRANS-)
ATSDR Toxicological Profiles (CL-BIB-0618)

101-14-4 (CURENE)
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

101-80-4 (OXYDIANILINE,4,4'-)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

10102-43-9 (NITRIC OXIDE)
Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

10102-44-0 (NITROGEN DIOXIDE)
Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

1987-1988 NMOC/NOX SUMMER STUDY (AMBIENT MINOTORING) (FL02KPDT0001)

STRATEGIES FOR CONTROLLING THE OXIDANT PROBLEM IN MAJOR URBAN AREAS (NY01 PROJECT 001)

1031-07-8 (ENDOSULFAN SULFATE)
ATSDR Toxicological Profiles (CL-BIB-0618)

106-42-3 (XYLENE,P-)
Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

106-43-4 (CHLOROTOLUENE,P-)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

106-44-5 (CRESOL,P-)
ATSDR Toxicological Profiles (CL-BIB-0618)

106-46-7 (DICHLOROBENZENE,1,4-)
New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

106-48-9 (CHLOROPHENOL,P-)
ATSDR Toxicological Profiles (CL-BIB-0618)

106-89-8 (EPICHLOROHYDRIN)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

106-93-4 (ETHYLENE DIBROMIDE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

ATSDR Toxicological Profiles (CL-BIB-0618)

106-99-0 (BUTADIENE,1,3-)
Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

ATSDR Toxicological Profiles (CL-BIB-0618)

Exposure Assessment for Motor Vehicle Air Toxics (CL-BIB-0725)

Atmospheric Transformation of Air Toxics: Benzene, 1,3-Butadiene, and Formaldehyde (CL-BIB-0726)

Motor Vehicle Air Toxics Health Information (CL-BIB-0727)

Mobile Source-Related Air Toxics Study (CL-BIB-0728)

Toxics Release Reduction Project (TRRP) (CL-BIB-0740)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

107-02-8 (ACROLEIN)
Health Assessment Document for Acrolein (CL-BIB-0059)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

107-06-2 (ETHYLENE DICHLORIDE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

107-21-1 (ETHYLENE GLYCOL)
Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

107-92-6 (BUTYRIC ACID)
ATSDR Toxicological Profiles (CL-BIB-0618)

108-05-4 (VINYL ACETATE)
ATSDR Toxicological Profiles (CL-BIB-0618)

108-10-1 (METHYLPENTANONE,4-,2-)
Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

108-31-6 (MALEIC ANHYDRIDE)
Summary Review of Health Effects Associated with Maleic Anhydride: Health Issue Assessment (CL-BIB-0560)

108-38-3 (XYLENE,M-)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

108-39-4 (CRESOL,M-)
ATSDR Toxicological Profiles (CL-BIB-0618)

108-60-1 (CHLOROMETHYLETHYLETHER,BIS,2-,1-)
ATSDR Toxicological Profiles (CL-BIB-0618)

108-70-3 (TRICHLOROBENZENE,1,3,5-)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

108-88-3 (TOLUENE)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Refinement of a Detection and Analysis Approach to Volatile Organic Compound Release Characterization Using a Whole Air Technique (CL-BIB-0348)

Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

33/50 Industrial Toxics Project (CL-BIB-0745)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

ASSESSMENT OF A SYNTHETIC RUBBER COATING PLANT FOR LOCALIZED HIGH RISK IMPACTS (PA0289-1-HRPS)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

108-90-7 (MONOCHLOROBENZENE)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

108-95-2 (PHENOL)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

Evaluation of Formaldehyde and Phenol Emissions from a Thermoset-ting Resins Facility in South Carolina (CL-BIB-0808)

109 (MISCELLANEOUS METAL ORES)
Uranium Miners-Low Dose Investigation (CL-BIB-0244)

109-06-8 (METHYLPYRIDINE,2-)
ATSDR Toxicological Profiles (CL-BIB-0618)

1094 (URANIUM-RADIUM-VANADIUM ORES)
Uranium Miners-Low Dose Investigation (CL-BIB-0244)

110-00-9 (FURAN)
ATSDR Toxicological Profiles (CL-BIB-0618)

110-54-3 (HEXANE,N-)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

110-80-5 (ETHOXYETHANOL,2-)
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

110-86-1 (PYRIDINE)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

ATSDR Toxicological Profiles (CL-BIB-0618)

111-76-2 (ETHYLENE GLYCOL MONOBUTYL ETHER)
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

115-29-7 (ENDOSULFAN)
ATSDR Toxicological Profiles (CL-BIB-0618)

117-81-7 (BIS(2-ETHYLHEXYL)PHTHALATE)
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

120-80-9 (CATECHOL)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

120-82-1 (TRICHLOROBENZENE,1,2,4-)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

120-83-2 (DICHLOROPHENOL,2,4-)
ATSDR Toxicological Profiles (CL-BIB-0618)

12001-29-5 (CHRYSOTILE)
Evaluation of Mesothelioma Production by Asbestos Substitutes (CL-BIB-0162)

121-69-7 (DIMETHYLANILINE,N,N-)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

ATSDR Toxicological Profiles (CL-BIB-0618)

123-31-9 (HYDROQUINONE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

123-86-4 (BUTYLACETATE,N-)
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138 (OIL AND GAS FIELD SERVICES)
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152 (RESIDENTIAL BUILDING CONSTRUCTION)
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1825-31-6 (NAPHTHALENE, 1,4-DICHLORO-)
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2050-73-9 (NAPHTHALENE, 1,7-DICHLORO-)
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2050-75-1 (NAPHTHALENE, 2,3-DICHLORO-)
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206 (SUGAR AND CONFECTIONERY PRODUCTS)
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2063 (BEET SUGAR)
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2198-75-6 (NAPHTHALENE, 1,3-DICHLORO-)
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221 (BROADWOVEN FABRIC MILLS, COTTON)
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249 (MISCELLANEOUS WOOD PRODUCTS)
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2491 (WOOD PRESERVING)
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2493 (RECONSTITUTED WOOD PRODUCTS)
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251 (HOUSEHOLD FURNITURE)
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252 (OFFICE FURNITURE)
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25322-20-7 (TETRACHLOROETHANE)
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26 (PAPER AND ALLIED PRODUCTS)
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261 (PULP MILLS)
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2611 (PULP MILLS)
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262 (PAPER MILLS)
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Background Information for the Pulp and Paper Industry NESHAP Development (CL-BIB-0782)

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2621 (PAPER MILLS)
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2631 (PAPERBOARD MILLS)
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26471-62-5 (TOLUENE DIISOCYANATE)
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2699-79-8 (SULFURYL FLUORIDE)
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275 (COMMERCIAL PRINTING)
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2752 (COMMERCIAL PRINTING, LITHOGRAPHIC)
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28 (CHEMICALS AND ALLIED PRODUCTS)
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28 (CHEMICALS AND ALLIED PRODUCTS) (cont.)
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282 (PLASTICS MATERIALS AND SYNTHETICS)
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2821 (PLASTICS MATERIALS AND RESINS)
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285 (PAINTS AND ALLIED PRODUCTS)
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2851 (PAINTS AND ALLIED PRODUCTS)
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286 (INDUSTRIAL ORGANIC CHEMICALS)
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2865 (CYCLIC CRUDES AND INTERMEDIATES)

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2869 (INDUSTRIAL ORGANIC CHEMICALS, NEC)

EVALUATING CARBON TETRACHLORIDE EMISSIONS AT THE VELSICOL CHEMICAL FACILITY IN MEMPHIS, TN (TN0368-D8-0097)

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2879 (AGRICULTURAL CHEMICALS, NEC)

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29 (PETROLEUM AND COAL PRODUCTS)

COSTS OF REDUCING AROMATICS AND SULFUR LEVELS IN MOTOR VEHICLE FUELS (COMPLETED RESEARCH) (CA01-A6-199-32)

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Health Risks Associated With Asphalt (CL-BIB-0771)

Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions (CL-BIB-0778)

Evaluation of Toxic Emissions from Asphalt Plants that Use Petroleum Contaminated Soils for Aggregate (CL-BIB-0807)

Health Effects of Asphalt Fumes (CL-BIB-0821)

High Risk Point Source Assessment of Oil Refineries in Commerce City, Colorado (CL-BIB-0826)

NESHAPS FOR RADIONUCLIDES RECONSIDERATION; PHOSPHOGYPSUM (RC01 1-3)

National Emission Standards for Hazardous Air Pollutants; Benzene Emissions from Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, (RC01_1-1)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

291 (PETROLEUM REFINING)

COSTS OF REDUCING AROMATICS AND SULFUR LEVELS IN MOTOR VEHICLE FUELS (COMPLETED RESEARCH) (CA01-A6-199-32)

Study to Determine the Impact of Rush Hour Traffic on Formaldehyde Levels (CL-BIB-0624)

Health Risks Associated With Asphalt (CL-BIB-0771)

Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions (CL-BIB-0778)

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Health Effects of Asphalt Fumes (CL-BIB-0821)

High Risk Point Source Assessment of Oil Refineries in Commerce City, Colorado (CL-BIB-0826)

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2911 (PETROLEUM REFINING)

COSTS OF REDUCING AROMATICS AND SULFUR LEVELS IN MOTOR VEHICLE FUELS (COMPLETED RESEARCH) (CA01-A6-199-32)

Study to Determine the Impact of Rush Hour Traffic on Formaldehyde Levels (CL-BIB-0624)

Health Risks Associated With Asphalt (CL-BIB-0771)

Evaluation of Petroleum Refinery Hazardous Air Pollutant Emissions (CL-BIB-0778)

Evaluation of Toxic Emissions from Asphalt Plants that Use Petroleum Contaminated Soils for Aggregate (CL-BIB-0807)

Health Effects of Asphalt Fumes (CL-BIB-0821)

High Risk Point Source Assessment of Oil Refineries in Commerce City, Colorado (CL-BIB-0826)

NESHAPS FOR RADIONUCLIDES RECONSIDERATION; PHOSPHOGYPSUM (RC01 1-3)

National Emission Standards for Hazardous Air Pollutants; Benzene Emissions from Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, (RC01_1-1)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

295 (ASPHALT PAVING AND ROOFING MATERIALS)
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2951 (ASPHALT PAVING MIXTURES AND BLOCKS)
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298-00-0 (METHYL PARATHION)
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30 (RUBBER AND MISC. PLASTICS PRODUCTS)
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306 (FABRICATED RUBBER PRODUCTS, NEC)
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3069 (FABRICATED RUBBER PRODUCTS, NEC)
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32 (STONE, CLAY, AND GLASS PRODUCTS)
Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

Comprehensive Revision to Asbestos NESHAP Rule (CL-BIB-0633)

Evaluation of Styrene Emissions at Two Fiberglass Manufacturers in Washington (CL-BIB-0805)

Evaluation of Fibrous Particulate Matter From a Mineral Products Manufacturing Company in Alabama (CL-BIB-0811)

32196-63-7 (GLYCOLS, POLYETHYLENE, MONO(2,3-EPOXY-2-))
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

3268-87-9 (OCTACHLORODIBENZO-P-DIOXIN)
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327 (CONCRETE, GYPSUM, AND PLASTER PRODUCTS)
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3271 (CONCRETE BLOCK AND BRICK)
Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

329 (MISC. NONMETALLIC MINERAL PRODUCTS)
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329 (MISC. NONMETALLIC MINERAL PRODUCTS) (cont.)
Evaluation of Fibrous Particulate Matter From a Mineral Products Manufacturing Company in Alabama (CL-BIB-0811)

3292 (ASBESTOS PRODUCTS)
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3295 (MINERALS, GROUND OR TREATED)
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3296 (MINERAL WOOL)
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3341 (SECONDARY NONFERROUS METALS)
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3471 (PLATING AND POLISHING)
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4911 (ELECTRIC SERVICES)

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492 (GAS PRODUCTION AND DISTRIBUTION)

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4922 (NATURAL GAS TRANSMISSION)
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4925 (GAS PRODUCTION AND/OR DISTRIBUTION)
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4941 (WATER SUPPLY)
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495 (SANITARY SERVICES) (cont.)
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Incineration 2000 (CL-BIB-0828)

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4953 (REFUSE SYSTEMS) (cont.)
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4961 (STEAM AND AIR-CONDITIONING SUPPLY)
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50-32-8 (BENZO(A)PYRENE)
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51-28-5 (DINITROPHENOL,2,4-)
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51207-31-9 (TETRACHLORODIBENZOFURAN,2,3,7,8-)
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Ethylene Oxide Mortality Study - NCI (CL-BIB-0224)

5149 (GROCERIES AND RELATED PRODUCTS, NEC)
Ethylene Oxide Mortality Study - NCI (CL-BIB-0224)

517 (PETROLEUM AND PETROLEUM PRODUCTS)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

5171 (PETROLEUM BULK STATIONS & TERMINALS)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

52 (BUILDING MATERIALS & GARDEN SUPPLIES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

525 (HARDWARE STORES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

5251 (HARDWARE STORES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

54-11-5 (L-NICOTINE)
Monitoring Human Exposure to Hazardous Air Pollutants (HAPs) (CL-BIB-0291)

The Particle Total Exposure Assessment Methodology (CL-BIB-0460)

Low Cost Personal Monitoring Devices for Indoor Air (CL-BIB-0471)

540-59-0 (DICHLOROETHYLENE,1,2-,CIS-TRANS-)
URBAN AIR TOXICS PROGRAM (MOO1 MONITORING 1)

540-84-1 (PENTANE, 2,2,4-TRIMETHYL-)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

541-73-1 (DICHLOROBENZENE,1,3-)
URBAN AIR TOXICS PROGRAM (MOO1 MONITORING 1)

542-75-6 (DICHLOROPROPENE,1,3-)
URBAN AIR TOXICS PROGRAM (MOO1 MONITORING 1)

55 (AUTOMOTIVE DEALERS & SERVICE STATIONS)
Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

554 (GASOLINE SERVICE STATIONS)
Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

5541 (GASOLINE SERVICE STATIONS)
Procedures for Estimating and Allocating Area Source Emissions of Air Toxics (CL-BIB-0545)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

56-23-5 (CARBON TETRACHLORIDE)
Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

56-23-5 (CARBON TETRACHLORIDE) (cont.)
33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (MOO1 MONITORING 1)

EVALUATING CARBON TETRACHLORIDE EMISSIONS AT THE VELSICOL CHEMICAL FACILITY IN MEMPHIS, TN (TN0368-D8-0097)

563-80-4 (METHYL ISOPROPYL KETONE)
33/50 Industrial Toxics Project (CL-BIB-0745)

57-12-5 (CYANIDE)
33/50 Industrial Toxics Project (CL-BIB-0745)

584-84-9 (TOLUENE-2,4-DIISOCYANATE)
Health Assessment Document for Toluene Diisocyanate (CL-BIB-0374)

58718-66-4 (HALOWAX 1000)
Mortality Study of Workers Exposed to Halowax (CL-BIB-0410)

58718-67-5 (HALOWAX 1001)
Mortality Study of Workers Exposed to Halowax (CL-BIB-0410)

591-78-6 (HEXANONE,2-)
ATSDR Toxicological Profiles (CL-BIB-0618)

62-56-6 (THIOUREA)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

624-83-9 (METHYL ISOCYANATE)
Health Assessment Document for Methyl Isocyanate (CL-BIB-0373)

Reportable Quantity Adjustments for Lead and Methyl Isocyanate (MIC) (CL-BIB-0823)

630-08-0 (CARBON MONOXIDE)
Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

Determination of Population Exposure to Mobile Source Pollutants (CL-BIB-0406)

Study to Determine the Impact of Rush Hour Traffic on Formaldehyde Levels (CL-BIB-0624)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

630-20-6 (TETRACHLOROETHANE,1,1,1,2-)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

64-17-5 (ETHANOL)
Chemical Analysis of Particulate Filters (Colorado) (CL-BIB-0445)

Study to Determine the Impact of Rush Hour Traffic on Formaldehyde Levels (CL-BIB-0624)

64741-88-4 (PETRO DISTILL(HEAVY))
Health Risks Associated With Asphalt (CL-BIB-0771)

67-56-1 (METHANOL)
Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

Madison Avenue Formaldehyde Study (CL-BIB-0535)

Impact of Mobile Emissions on Noncancer Risk (CL-BIB-0737)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

67-64-1 (ACETONE)
Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

67-66-3 (CHLOROFORM)
Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

33/50 Industrial Toxics Project (CL-BIB-0745)

Ambient Monitoring for Chloroform from a Kraft Pulp Mill in Idaho (CL-BIB-0804)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

71-36-3 (BUTYL ALCOHOL)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

ATSDR Toxicological Profiles (CL-BIB-0618)

71-43-2 (BENZENE)
STUDY TO DETERMINE THE FATE OF BENZENE PRECURSORS IN GASOLINE (COMPLETED RESEARCH) (CA01-A5-128-32)

Control of Benzene Emissions from Light Duty Vehicles (CA01-A6-204-32)

Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

Northern Wisconsin Boiler Evaluation (CL-BIB-0627)

Municipal Solid Waste Landfill NSPS (CL-BIB-0683)

Exposure Assessment for Motor Vehicle Air Toxics (CL-BIB-0725)

Atmospheric Transformation of Air Toxics: Benzene, 1,3-Butadiene, and Formaldehyde (CL-BIB-0726)

Motor Vehicle Air Toxics Health Information (CL-BIB-0727)

Mobile Source-Related Air Toxics Study (CL-BIB-0728)

71-43-2 (BENZENE) (cont.)
Toxics Release Reduction Project (TRRP) (CL-BIB-0740)

33/50 Industrial Toxics Project (CL-BIB-0745)

National Emission Standards for Hazardous Air Pollutants; Amendment to Benzene Rule for Coke By-Product Recovery Plants (CL-BIB-0747)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

ASSESSMENT OF A SYNTHETIC RUBBER COATING PLANT FOR LOCALIZED HIGH RISK IMPACTS (PA0289-1-HRPS)

NESHAPS FOR RADIONUCLIDES RECONSIDERATION; PHOSPHOGYPSUM (RC01 1-3)

National Emission Standards for Hazardous Air Pollutants; Benzene Emissions from Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, (RC01_1-1)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

71-55-6 (TRICHLOROETHANE,1,1,1-)
Refinement of a Detection and Analysis Approach to Volatile Organic Compound Release Characterization Using a Whole Air Technique (CL-BIB-0348)

Dry Cleaning NESHAP (CL-BIB-0630)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

33/50 Industrial Toxics Project (CL-BIB-0745)

Evaluation of Trichloroethane Emissions from a Large Solvent User in Knoxville, Tennessee (CL-BIB-0812)

URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

AMBIENT ORGANICS IN OLNEYVILLE, RI AIR (RI01002)

72 (PERSONAL SERVICES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

Dry Cleaning NESHAP (CL-BIB-0630)

721 (LAUNDRY, CLEANING, & GARMENT SERVICES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

721 (LAUNDRY, CLEANING, & GARMENT SERVICES) (cont.)
Dry Cleaning NESHAP (CL-BIB-0630)

7215 (COIN-OPERATED LAUNDRIES AND CLEANING)
Dry Cleaning NESHAP (CL-BIB-0630)

7216 (DRYCLEANING PLANTS, EXCEPT ROG)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

Dry Cleaning NESHAP (CL-BIB-0630)

7218 (INDUSTRIAL LAUNDERERS)
Dry Cleaning NESHAP (CL-BIB-0630)

73 (BUSINESS SERVICES)
ETHYLENE OXIDE REGULATIONS (OH04ETO)

74-82-8 (METHANE)
Municipal Solid Waste Landfill NSPS (CL-BIB-0683)

74-83-9 (METHYL BROMIDE)
ATSDR Toxicological Profiles (CL-BIB-0618)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

Study of Methyl Bromide and Sulfuryl Fluoride Applicators (CL-BIB-0775)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

74-87-3 (METHYL CHLORIDE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

74-90-8 (HYDROGEN CYANIDE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

33/50 Industrial Toxics Project (CL-BIB-0745)

74-93-1 (METHANETHIOL)
ATSDR Toxicological Profiles (CL-BIB-0618)

74-97-5 (BROMOCHLOROMETHANE)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7429-90-5 (ALUMINUM)
ATSDR Toxicological Profiles (CL-BIB-0618)

7429-90-5 (ALUMINUM) (cont.)
Interaction of Liberated Aluminum from a Coal-fired Electric Power Plant with a Hardwood Forest Ecosystem in Southwestern Illinois (IL01-871065)

7439-92-1 (LEAD POWDER)
Heavy Metal Sampling (CL-BIB-0626)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7439-96-5 (MANGANESE)
ATSDR Toxicological Profiles (CL-BIB-0618)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7439-97-6 (MERCURY)
33/50 Industrial Toxics Project (CL-BIB-0745)

Evaluation of Mercury Test Methods for Monitoring Municipal Waste Incinerators (CL-BIB-0780)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0793)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7439-98-7 (MOLYBDENUM)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7440-02-0 (NICKEL)
Heavy Metal Sampling (CL-BIB-0626)

33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7440-28-0 (THALLIUM, SOLUBLE COMPOUNDS, AS TL)
ATSDR Toxicological Profiles (CL-BIB-0618)

7440-31-5 (TIN, AS SN)
ATSDR Toxicological Profiles (CL-BIB-0618)

7440-36-0 (ANTIMONY)
ATSDR Toxicological Profiles (CL-BIB-0618)

7440-38-2 (ARSENIC AND COMPOUNDS AS AS)
Heavy Metal Sampling (CL-BIB-0626)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7440-39-3 (BARIUM)
ATSDR Toxicological Profiles (CL-BIB-0618)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7440-41-7 (BERYLLIUM)
Heavy Metal Sampling (CL-BIB-0626)

Beryllium Case Control Study (CL-BIB-0772)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7440-42-8 (BORON)
ATSDR Toxicological Profiles (CL-BIB-0618)

7440-43-9 (CADMIUM)
Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

Heavy Metal Sampling (CL-BIB-0626)

33/50 Industrial Toxics Project (CL-BIB-0745)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0793)

ASARCO-GLOBE, PRIMARY CADMIUM REFINERY ASSESSMENT OF HEALTH RISK (CO01001HRPSASARCO)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7440-47-3 (CHROMIUM)
FATE OF HEXAVALENT CHROMIUM IN THE ATMOSPHERE (COMPLETED RESEARCH) (CA01-A6-096-32)

Field Testing and Method Evaluation for Industrial Cooling Towers (CL-BIB-0360)

Field Testing and Method Evaluation of Chrome Electroplating Plants (CL-BIB-0361)

Chromium Electroplating NESHAP Development (CL-BIB-0384)

Industrial Cooling Towers Chromium NESHAP Development (CL-BIB-0385)

Heavy Metal Sampling (CL-BIB-0626)

Development of a Chromium Sampling Method (CL-BIB-0706)

33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

RUTLAND RESOURCE RECOVERY FACILITY SITE-SPECIFIC ENVIRONMENTAL ASSESSMENT (VT01RUTLAND RRF01)

7440-47-3 (CHROMIUM) (cont.)
JORGENSEN STEEL BAGHOUSE CHROMIUM EMISSIONS (WA02 PSAPCA 10)

7440-48-4 (COBALT)
ATSDR Toxicological Profiles (CL-BIB-0618)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7440-50-8 (COPPER)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7440-62-2 (VANADIUM)
ATSDR Toxicological Profiles (CL-BIB-0618)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7440-66-6 (ZINC)
Heavy Metal Sampling (CL-BIB-0626)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

7446-09-5 (SULFUR DIOXIDE)
Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

THE ARS PROJECT (AGGREGATE REDUCED SULFUR) (FL02ARS0002)

75 (AUTO REPAIR, SERVICES, AND PARKING)
Alternative Coatings Demonstration Projects (CL-BIB-0752)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

75-00-3 (CHLOROETHANE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-01-4 (VINYL CHLORIDE)
Update of Completed Cohort Mortality Studies - NCI (CL-BIB-0227)

Municipal Solid Waste Landfill NSPS (CL-BIB-0683)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-07-0 (ACETALDEHYDE)
Health Assessment Document for Acetaldehyde (CL-BIB-0061)

Process Evaluation of Ambient Air Monitoring Near a Sugar Beet Processing Plant in Idaho (CL-BIB-0296)

Exposure Assessment for Motor Vehicle Air Toxics (CL-BIB-0725)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-09-2 (METHYLENE CHLORIDE)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

75-09-2 (METHYLENE CHLORIDE) (cont.)
Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-15-0 (CARBON DISULFIDE)
Determine Neurotoxic Dose-Effect Relationships (CL-BIB-0109)

Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

ATSDR Toxicological Profiles (CL-BIB-0618)

75-21-8 (ETHYLENE OXIDE)
Ethylene Oxide Mortality Study - NCI (CL-BIB-0224)

Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

Ethylene Oxide Commercial Sterlization/Fumigation NESHAP (CL-BIB-0679)

Dose Rate Inhalation Study of Ethylene Oxide (CL-BIB-0765)

Ethylene Oxide Mortality Study (CL-BIB-0773)

Development of INTOXX (Integrated Toxic Expected Exceedance Model) System (CL-BIB-0797)

Mutagen-Induced Fetal Anomalies Subsequent to Exposure of Mouse Zygotes (CL-BIB-0801)

Reproductive and Developmental Toxicity Risk Assessment of Short-Term Exposure to Ethylene Oxide (CL-BIB-0802)

Evaluation of Ethylene Oxide Emissions from Small Hospital Sterilizers in Jacksonville, Florida (CL-BIB-0810)

High Risk Point Source Assessment of a Medical Products Manufacturer in Brookings, South Dakota (CL-BIB-0827)

ETHYLENE OXIDE REGULATIONS (OH04ETO)

75-25-2 (BROMOFORM)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-27-4 (BROMODICHLOROMETHANE)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-34-3 (DICHLOROETHANE,1,1-)
ATSDR Toxicological Profiles (CL-BIB-0618)

75-34-3 (DICHLOROETHANE,1,1-) (cont.)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-35-4 (DICHLOROETHYLENE,1,1-)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

75-44-5 (PHOSGENE)
Health Assessment Document for Phosgene (CL-BIB-0063)

Determine Pulmonary and Immune System Toxicity (CL-BIB-0108)

75-69-4 (FLUOROTRICHLOROMETHANE)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

75-71-8 (DICHLORODIFLUOROMETHANE)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

753 (AUTOMOTIVE REPAIR SHOPS)
Alternative Coatings Demonstration Projects (CL-BIB-0752)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

7532 (TOP & BODY REPAIR & PAINT SHOPS)
Alternative Coatings Demonstration Projects (CL-BIB-0752)

Control Techniques Guidelines (CTGs) Development for Automotive Refinishing (CL-BIB-0788)

7631-86-9 (SILICA)
Effective Silica Indices of Respirable Mineral Dusts (CL-BIB-0195)

Review of the Health Effects of Silica (CL-BIB-0819)

7647-01-0 (HYDROGEN CHLORIDE)
Health Assessment Document for Chlorine and Hydrogen Chloride, External Review (CL-BIB-0280)

Methods Development for Hazardous Waste Combustors (CL-BIB-0289)

ATSDR Toxicological Profiles (CL-BIB-0618)

Municipal Waste Combustors NSPS, Phase II (CL-BIB-0748)

Short-Term Health Effects and Dose-Response for Hydrogen Chloride (CL-BIB-0820)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

7664-38-2 (PHOSPHORIC ACID)
ATSDR Toxicological Profiles (CL-BIB-0618)

7664-39-3 (HYDROGEN FLUORIDE)
ATSDR Toxicological Profiles (CL-BIB-0618)

Inhalation Study on Hydrogen Fluoride (CL-BIB-0674)

7664-93-9 (SULFURIC ACID)
ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

77-73-6 (DICYCLOPENTADIENE)
ATSDR Toxicological Profiles (CL-BIB-0618)

77-78-1 (DIMETHYL SULFATE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

7723-14-0 (PHOSPHORUS (YELLOW))
Summary Review of Health Effects Associated with Organic Phosphorus: Health Issue Assessment (CL-BIB-0562)

7782-41-4 (FLUORINE)
ATSDR Toxicological Profiles (CL-BIB-0618)

7782-50-5 (CHLORINE)
Health Assessment Document for Chlorine and Hydrogen Chloride, External Review (CL-BIB-0280)

Supplements to the Proposed Rules for Boilers, Industrial Furnaces, and Incinerators that Use Hazardous Waste as Fuel (CL-BIB-0709)

7783-06-4 (HYDROGEN SULFIDE)
Health Assessment Document for Hydrogen Sulfide (CL-BIB-0062)

THE ARS PROJECT (AGGREGATE REDUCED SULFUR) (FL02ARS0002)

ASSESSMENT OF EMISSIONS FROM ADJACENT INDUSTRIES IMPACTING THE BROOKHURST SUBDIVISION, NATRONA COUNTY, WYOMING (WY01-2)

78-87-5 (DICHLOROPROPANE,1,2-)
URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

78-93-3 (METHYL ETHYL KETONE)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

ATSDR Toxicological Profiles (CL-BIB-0618)

33/50 Industrial Toxics Project (CL-BIB-0745)

Control Techniques Guideline (CTG) for Surface Coating of Plastic Parts (CL-BIB-0789)

ASSESSMENT OF A SYNTHETIC RUBBER COATING PLANT FOR LOCALIZED HIGH RISK IMPACTS (PA0289-1-HRPS)

79 (AMUSEMENT & RECREATION SERVICES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

79-00-5 (TRICHLOROETHANE,1,1,2-)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

79-00-5 (TRICHLOROETHANE,1,1,2-) (cont.)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

79-01-6 (TRICHLOROETHYLENE)
Health Assessment for Trichloroethylene Cancer Update (CL-BIB-0282)

Analysis of Non-Methane Organic Compounds (NMOC) Canisters for Selected Organic Compounds by GC/MSD (CL-BIB-0536)

Organic Solvent Cleaners NESHAP (CL-BIB-0673)

33/50 Industrial Toxics Project (CL-BIB-0745)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

DEVELOPMENT OF A HUMAN EXHALED BREATH SAMPLING SYSTEM (NJ01PROJECT 29955)

AMBIENT ORGANICS IN OLNEYVILLE, RI AIR (RI01002)

79-34-5 (TETRACHLOROETHANE,1,1,2,2-)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

URBAN AIR TOXICS PROGRAM (MO01 MONITORING 1)

79-46-9 (NITROPROPANE,2-)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

799 (MISC. AMUSEMENT, RECREATION SERVICES)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

7999 (AMUSEMENT AND RECREATION, NEC)
Toxic Chemical Testing for Assessment Exposure Monitoring Systems Development (CL-BIB-0401)

80 (HEALTH SERVICES)
Ethylene Oxide Mortality Study - NCI (CL-BIB-0224)

Evaluation of Ethylene Oxide Emissions from Small Hospital Sterilizers in Jacksonville, Florida (CL-BIB-0810)

ETHYLENE OXIDE REGULATIONS (OH04ETO)

80-62-6 (METHYL METHACRYLATE)
Summary Review of Health Effects Associated with Methyl Methacrylate: Health Issue Assessment (CL-BIB-0558)

8006-61-9 (GASOLINE)
Chemical Analysis of Particulate Filters (Colorado) (CL-BIB-0445)

New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

8006-61-9 (GASOLINE) (cont.)
Denver Brown Cloud Study #2 (CL-BIB-0623)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

NESHAPS FOR RADIONUCLIDES RECONSIDERATION; PHOSPHOGYPSUM (RC01 1-3)

National Emission Standards for Hazardous Air Pollutants; Benzene Emissions from Chemical Manufacturing Process Vents, Industrial Solvent Use, Benzene Waste Operations, Benzene Transfer Operations, (RC01_1-1)

8008-20-6 (NAVY FUELS JP-5)
Chamber Studies Characterizing the Organic Emissions from Kerosene Space Heaters: Phase II (CL-BIB-0449)

8021-39-4 (CREOSOTE)
Evaluation of Pentachlorophenol and Creosote Emissions from a Wood Treatment Facility in Florida (CL-BIB-0809)

8052-42-4 (ASPHALT (PETROLEUM) FUMES)
Health Effects of Asphalt Fumes (CL-BIB-0821)

806 (HOSPITALS)
Ethylene Oxide Mortality Study - NCI (CL-BIB-0224)

Evaluation of Ethylene Oxide Emissions from Small Hospital Sterilizers in Jacksonville, Florida (CL-BIB-0810)

ETHYLENE OXIDE REGULATIONS (OH04ETO)

8062 (GENERAL MEDICAL & SURGICAL HOSPITALS)
ETHYLENE OXIDE REGULATIONS (OH04ETO)

82 (EDUCATIONAL SERVICES)
Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

School Mitigation Demonstrations Program (CL-BIB-0641)

School Facility Managers' Guide to Indoor Air Quality (CL-BIB-0723)

Profile of School Building Characteristics Influencing Radon Entry and Mitigation (CL-BIB-0760)

Demonstration of Active Subslab Depressurization (ASD) in Schools with Varied Construction, Geology, and Climate (CL-BIB-0761)

821 (ELEMENTARY AND SECONDARY SCHOOLS)
Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

821 (ELEMENTARY AND SECONDARY SCHOOLS) (cont.)
National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

School Mitigation Demonstrations Program (CL-BIB-0641)

School Facility Managers' Guide to Indoor Air Quality (CL-BIB-0723)

8211 (ELEMENTARY AND SECONDARY SCHOOLS)
Radon Mitigation and Prevention in Schools and Large Buildings (CL-BIB-0598)

Radon Measurements in Schools: An Interim Report (CL-BIB-0606)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

School Mitigation Demonstrations Program (CL-BIB-0641)

School Facility Managers' Guide to Indoor Air Quality (CL-BIB-0723)

85-44-9 (PHTHALIC ANHYDRIDE)
Summary Review of Health Effects Associated with Phthalic Anhydride: Health Issue Assessment (CL-BIB-0559)

87 (ENGINEERING & MANAGEMENT SERVICES)
ETHYLENE OXIDE REGULATIONS (OH04ETO)

87-61-6 (TRICHLOROBENZENE,1,2,3-)
ATSDR Toxicological Profiles (CL-BIB-0618)

87-68-3 (HEXACHLORO-1,3-BUTADIENE)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

87-86-5 (PENTACHLOROPHENOL)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

Evaluation of Pentachlorophenol and Creosote Emissions from a Wood Treatment Facility in Florida (CL-BIB-0809)

8734 (TESTING LABORATORIES)
ETHYLENE OXIDE REGULATIONS (OH04ETO)

88 (PRIVATE HOUSEHOLDS)
Integrated Air Cancer Project (IACP) (CL-BIB-0115)

Indoor Air Quality Research (CL-BIB-0290)

Integrated Air Cancer Project (IACP) (CL-BIB-0408)

New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

88 (PRIVATE HOUSEHOLDS) (cont.)
Home Builders' Guide to Indoor Air Quality (CL-BIB-0550)

National Residential Radon Survey (CL-BIB-0602)

House Evaluation Program to Evaluate the Cost and Effectiveness of Radon Mitigation Methods (CL-BIB-0603)

Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites (CL-BIB-0605)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

Guide to Reduction of Indoor Radon in Illinois Homes (IL01-871113)

88-75-5 (NITROPHENOL,O-)
ATSDR Toxicological Profiles (CL-BIB-0618)

88-85-7 (DINITROBUTYLPHENOL,2,4-,6-SEC-)
ATSDR Toxicological Profiles (CL-BIB-0618)

881 (PRIVATE HOUSEHOLDS)
Integrated Air Cancer Project (IACP) (CL-BIB-0115)

Indoor Air Quality Research (CL-BIB-0290)

Integrated Air Cancer Project (IACP) (CL-BIB-0408)

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Integrated Air Cancer Project (IACP) (CL-BIB-0408)

8811 (PRIVATE HOUSEHOLDS) (cont.)
New Studies of Population Exposure to VOCs and Major Sources of Exposure (CL-BIB-0498)

Effectiveness of Various Surface Coatings and Concrete Blocks in Reducing Low Pressure-Driven Influx of Radon Through Concrete Block Basement Walls (CL-BIB-0499)

Home Builders' Guide to Indoor Air Quality (CL-BIB-0550)

National Residential Radon Survey (CL-BIB-0602)

House Evaluation Program to Evaluate the Cost and Effectiveness of Radon Mitigation Methods (CL-BIB-0603)

Superfund Cooperative Project - Application of Radon Mitigation Techniques to Superfund Sites (CL-BIB-0605)

National Assessment of Radon Gas (SARA Section 118(k)) (CL-BIB-0607)

Guide to Reduction of Indoor Radon in Illinois Homes (IL01-871113)

9016-45-9 (ANTAROX)
Epidemiologic and Industrial Hygiene Support of Toxic Substance Control Act - EPA (CL-BIB-0232)

91-20-3 (NAPHTHALENE)
Preliminary Evaluation of Test Methods for Volatile Organics in Hazardous Waste (CL-BIB-0480)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

92-52-4 (BIPHENYL)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

93-76-5 (TRICHLOROPHENOXYACETIC ACID,2,4,5-)
Monitoring of Dioxin at Dioxin Removal Sites (CL-BIB-0613)

94-75-7 (DICHLOROPHENOXYACETICACID,2,4-)
Monitoring of Dioxin at Dioxin Removal Sites (CL-BIB-0613)

95-47-6 (XYLENE,O-)
Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

95-48-7 (CRESOL,O-)
ATSDR Toxicological Profiles (CL-BIB-0618)

95-49-8 (CHLOROTOLUENE,O-)
Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

95-50-1 (DICHLOROBENZENE,1,2-)
URBAN AIR TOXICS PROGRAM (M001 MONITORING 1)

95-94-3 (TETRACHLOROBENZENE,1,2,4,5-)
ATSDR Toxicological Profiles (CL-BIB-0618)

959-98-8 (ALPHA-ENDOSULFAN)
ATSDR Toxicological Profiles (CL-BIB-0618)

96-12-8 (DIBROMOCHLOROPROPANE,1,2,3-)
ATSDR Toxicological Profiles (CL-BIB-0618)

96-18-4 (TRICHLOROPROPANE,1,2,3-)
ATSDR Toxicological Profiles (CL-BIB-0618)

Health Advisory for 15 Unregulated Volatile Organic Compounds (CL-BIB-0677)

98-82-8 (CUMENE)
ATSDR Toxicological Profiles (CL-BIB-0618)

Stage I Gasoline Marketing NESHAP (CL-BIB-0794)

98-95-3 (NITROBENZENE)
Chemical Hazard Information Profiles (CHIP's) for Various Chemicals (CL-BIB-0345)

99-65-0 (DINITROBENZENE,1,3-)
ATSDR Toxicological Profiles (CL-BIB-0618)

99-99-0 (NITROTOLUENE,P-)
ATSDR Toxicological Profiles (CL-BIB-0618)

APPENDIX

APPENDIX

EPA OFFICE OF DRINKING WATER PROJECTS

Under the Safe Drinking Water Act (SDWA), the U. S. Environmental Protection Agency is required to publish regulations that apply to public drinking water systems and control specific contaminants which in the Administrator's judgement "may have any adverse effect on the health of persons." Information concerning these regulations is contained in this appendix.

As part of the regulatory development activities, the EPA Office of Ground Water and Drinking Water (OGWDW) conducts studies on potentially toxic chemicals. Clearinghouse users may find health information generated by ODW projects useful. For further information, contact: Safe Drinking Water Hotline, (800) 426-4791 or (202) 382-5533, or the U. S. Environmental Protection Agency, Drinking Water Standards Division, Office of Drinking Water (WH-550D), 401 M Street, S.W., Washington, D.C., 20460, (202) 382-7575, (FTS) 382-7575.

Drinking Water Regulations under 1986 Amendments to SDWA

Significant directives to EPA's standard-setting program for drinking water contaminants included in the 1986 Amendments to the SDWA are provided below.

- EPA must set maximum contaminant level goals (MCLG's) and national primary drinking water regulations (NPDWR's) for 83 specific contaminants and for any other contaminant in drinking water that may have any adverse effect upon the health of persons and that is known or anticipated to occur in public water systems.

- Recommended maximum contaminant levels (RMCL's) are now termed maximum contaminant level goals (MCLG's). No changes were made in the basis of an MCLG; i.e.,

  > MCLG's are non-enforceable health goals that are to be set at levels at which no known or anticipated adverse health effects occur and which allow an adequate margin of safety.

- Maximum contaminant levels (MCL's) must be set as close to MCLG's as is feasible. The definition of "feasible" was changed to the following:

  > Feasible means with the use of the best technology, treatment techniques and other means, which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking costs into consideration).

  The SDWA states granular activated carbon (GAC) is feasible for the control of synthetic organic chemicals (SOC's), and any technology or other means found to be best available for control of SOC's must be at least as effective in controlling SOC's as GAC.

- MCLG's and MCL's are to be proposed at the same time and also promulgated simultaneously.

- MCLG's, NPDWR's and monitoring requirements are to be set for 83 contaminants listed in the SDWA. NPDWR's can be either MCL's or treatment technique requirements. The best available technology (BAT) must also be specified for each contaminant for which an MCL is established.

- Table A-1 lists the 83 contaminants required to be regulated. Seven substitutes were allowed if regulation of any seven other contaminants would be more protective of public health (see Tables A-2 and A-3). The substituted contaminants must be included on the drinking water priority list (see Table A-4).

- The timetable set by the SDWA to produce the MCLG's and NPDWR's requirements was as follows:

  - 9 by June 19, 1987

  - 40 by June 19, 1988

  - 34 by June 19, 1989

- MCLG's, NPDWR's, and monitoring requirements must be set for other contaminants in drinking water that may pose a health risk.

  - The 1986 Amendments require the EPA to publish a drinking water priority list (DWPL) of drinking water contaminants that may require regulation under the SDWA (see Table A-4).

  - The list must be published by January 1, 1988, and every 3 years thereafter.

  - MCLG's, NPDWR's and monitoring requirements are to be set for at least 25 contaminants on the list by January 1, 1991.

  - MCLG's, NPDWR's and monitoring requirements are to be set for at least 25 contaminants every 3 years following January 1, 1991 (e.g., 1994, 1997), from subsequent triennial lists.

- Criteria must be established by which States must determine which surface water systems must install filtration. The SDWA deadline for promulgating this criteria was December 19, 1987. States with primary enforcement responsibility must make determinations regarding filtration within 12 months of promulgation of these criteria and must adopt regulations to implement the filtration requirements within 18 months of promulgation.

- A treatment technique regulation must be promulgated to require all public water systems to use disinfection.

  - Variances will be available. EPA will specify variance criteria (e.g., quality of source water, protection afforded by watershed management).

  - The disinfection treatment rule must be promulgated by June 19, 1989.

- The 1986 Amendments banned the use of any pipe, solder, flux, or fittings that are not "lead free" in a public water system or in any building connected to a public water system. Flux and solder may not have more than 0.2% lead, and pipe and fittings not more than 8% lead.

- Requirements must be set for water systems to monitor for unregulated contaminants.

  - Minimum monitoring frequency is 5 years.

  - States may add/delete contaminants from list.
  - Requirements to monitor for unregulated contaminants must be promulgated by December 19, 1987.

- MCLG's, NPDWR's, and monitoring requirements must be reviewed by EPA every 3 years.

- Other requirements/provisions of the 1986 Amendments:

  - Public notification regulations may be changed to provide for different types and frequencies of notice depending upon the potential health risk.

  - BAT for issuance of variances must be set when MCL's are set. BAT may vary depending upon the size of systems and other factors, including costs.

  - Exemptions can be extended for systems with 500 service connections or less. No limit is placed on the number of extensions but certain criteria must be met.

- Table A-5 includes a summary of deadlines pertinent to standard-setting.

- Table A-6 presents the status of national primary drinking water regulations. All current drinking water regulations, which have been promulgated as of July 1 in any year, may be found in Title 40 of the *Code of Federal Regulations (CFR)*, Parts 141, 142, and 143. Regulations published between *CFR* editions may be found in the *Federal Register (FR)*.

TABLE A-1. CONTAMINANTS REQUIRED TO BE REGULATED UNDER THE SDWA AMENDMENTS OF 1986

Volatile Organic Compounds

Benzene[a,b]	1,1-Dichloroethylene[a,b]	Trichlorobenzene[g]
Carbon tetrachloride[a,b]	cis-1,2,-Dichloroethylene[c]	1,1,1-Trichloroethane[a,b]
Chlorobenzene[c]	trans-1,2,Dichloroethylene[c]	Trichloroethylene[a,b]
Dichlorobenzene[a,b,c]	Dichloromethane[g]	Vinyl chloride[a,b]
1,2,-Dichloroethane[a,b]	Tetrachloroethylene[c]	

Microbiology and Turbidity

Giardia lamblia[f]	Standard plate count[f]	Turbidity[a,f]
Legionella[f]	Total coliforms[a,f]	Viruses[f]

Inorganics

Aluminum[h]	Copper[j]	Nitrite[c,i]
Antimony[g]	Cyanide[g]	Selenium[a,c]
Arsenic[a,l]	Fluoride[a,k]	Silver[a,c,h]
Asbestos[c]	Lead[a,j]	Sodium[h]
Barium[a,d]	Mercury[a,c]	Sulfate[g]
Beryllium[g]	Molybdenum[h]	Thallium[g]
Cadmium[a,c]	Nickel[g]	Vanadium[h]
Chromium[a,c]	Nitrate[a,c]	Zinc[h]

Organics

Acrylamide[c]	Dinoseb[g]	PCB's[c]
Adipates[g]	Diquat[g]	Pentachlorophenol[d]
Alachlor[c]	EDB[c]	Phthalates[g]
Aldicarb[d]	Endothall[g]	Picloram[g]
Aldicarb sulfone[d,i]	Endrin[a,c]	Simazine[g]
Aldicarb sulfoxide[d,i]	Epichlorohydrin[c]	Styrene[c,i]
Atrazine[c]	Ethylbenzene[c,i]	2,3,7,8-TCDD (Dioxin)[g]
Carbofuran[c]	Glyphosate[g]	Toluene[c]
Chlordane[c]	Heptachlor[c,i]	Toxaphene[a,c]
2,4,-D[a,c]	Heptachlor epoxide[c,i]	2,4,5-TP[a,c]
Dalapon[g]	Hexachlorocyclopentadiene[g]	1,1,2-Trichloroethane[g]
DBCP[c]	Lindane[a,c]	Vydate[g]
Dibromomethane[h]	Methoxychlor[a,c]	Xylene[c]
1,2-Dichloropropane[c]	PAH's[g]	

Radionuclides

Beta particle and photon radioactivity[a,e]	Radium 226[a,e]	Radon[e]
Gross alpha particle activity[a,e]	Radium 228[a,e]	Uranium[e]

[a] Contaminants currently regulated.
[b] Contaminants with MCL's and MCLG's promulgated July 8, 1987.
[c] Contaminants with NPDWR's promulgated on January 30, 1991.
[d] Contaminants with NPDWR's scheduled for promulgation July 1991.
[e] Contaminants with NPDWR's scheduled for proposal in July 1991.
[f] Contaminants with NPDWR's promulgated on June 29, 1989.
[g] Contaminants with NPDWR's proposed July 25, 1990 and scheduled for promulgation March 1992.
[h] Contaminants removed from the list of 83.
[i] Contaminants added to the list of 83.
[j] Contaminants with NPDWR's promulgated June 7, 1991.
[k] Fluoride final rule April 2, 1986.
[l] Arsenic to be revised at a later date.

TABLE A-2. CONTAMINANTS REMOVED FROM SDWA LIST OF 83

Aluminum	Molybdenum	Sodium	Zinc
Dibromomethane	Silver	Vanadium	

TABLE A-3. CONTAMINANTS SUBSTITUTED INTO SDWA LIST OF 83

Aldicarb sulfone	Ethylbenzene	Heptachlor epoxide	Styrene
Aldicarb sulfoxide	Heptachlor	Nitrite	

TABLE A-4. DRINKING WATER PRIORITY LIST (DWPL)

Inorganics
Aluminum
Boron
Chloramines
Chlorate
Chlorine
Chlorine dioxide
Chlorite
Cyanogen chloride
Hypochlorite ion
Manganese
Molybdenum
Strontium
Vanadium
Zinc

Pesticides
Asulam
Bentazon
Bromacil
Cyanazine
Cyromazine
DCPA (and its acid metaboliles)
Dicamba
Ethylenethiourea
Fomesafen
Lactofen/Acifluorfen
Metalaxyl
Methomyl
Metolachlor
Metribuzin
Parathion degradation product (4-nitrophenol)
Prometon
2,4,5-T
Thiodicarb
Trifluralin

Microorganisms
Cryptosporidum

Synthetic Organic Chemicals
Acrylonitrile
Bromobenzene

Synthetic Organic Chemicals (cont'd)
Bromochloroacetonitrite
Bromodicholoromethane
Bromoform
Bromomethane
Chlorination/Chloramination by-products
Chloroethane
Chloroform
Chloromethane
Chloropicrin
o-Chlorotoluene
p-Chlorotoluene
Dibromoacetonitrile
Dibromochloromethane
Dibromomethane
Dichloroacetonitrile
1,3-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
2,2-Dichloropropane
1,3-Dichloropropane
1,1-Dichloropropene
1,3-Dichloropropene
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
1,2-Diphenylhydrazine
Fluorotrichloromethane
Hexachlorobutadiene
Hexachloroethane
Isophorone
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl-t-butyl ether
Naphthalene
Nitrobenzene
Ozone by-products
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrahydrofuran
Trichloroacetonitrile
1,2,3-Trichloropropane

TABLE A-5. SUMMARY OF DEADLINES FOR STANDARDS UNDER SDWA AMENDMENTS OF 1986

What	When
9 MCLG's and NPDWR's/Monitoring	**June 19, 1987**
Fluoride MCLG/MCL - Final	April 2, 1986
8 VOC's MCLG's/MCL's - Final	July 8, 1987
Propose Seven Substitutes	**July 19, 1987**
7 Substitutes - Proposed	July 8, 1987
Public Notice Revisions	**Sept. 19, 1987**
PN Revisions - Final	October 28, 1987
Filtration Criteria	**Dec. 19, 1987**
Filtration & Disinfection Rule - Final	June 29, 1989
Monitoring for Unregulated Contaminants	**Dec. 19, 1987**
First Group - Final	July 8, 1987
Second Group - Proposed	May 22, 1989
First List of Contaminants (DWPL)	**January 1, 1988**
List of 83 and DWPL - Final	January 22, 1988
40 MCLG's and NPDWR's/Monitoring	**June 19, 1988**
Lead/Copper Rule - Proposed	August 18, 1988
33 IOC's and SOC's (Phase II) - Final	January 30, 1991
5 IOC's and SOC's (Phase II) - Reproposed	January 30, 1991
34 MCLG's and NPDWR's/Monitoring	**June 19, 1989**
Total Coliform - Final	June 29, 1989
4 Microbes and Turbidity - Final	June 29, 1989
24 IOC's and SOC's (Phase V) - Proposed	June 1990
6 Radionuclides - Expected Proposal	July 1991
Arsenic - Expected Proposal	January 1993
Disinfection Treatment	**June 19, 1989**
Filtration and Disinfection - Final	June 29, 1989
Ground Water Disinfection - Expected Proposal	June 1993
25 MCLG's and NPDWR's/Monitoring	**January 1, 1991**
Disinfection By-products and Additional IOC's and SOC's - Expected Proposal	June 1993

TABLE A-6. NATIONAL PRIMARY DRINKING WATER REGULATIONS STATUS

Action	Date/Federal Register Citation
VOC's	
Advance notice of proposed rulemaking	March 4, 1982 47 FR 9350
Proposed MCLG's	June 12, 1984 49 FR 24330
Final MCLG's, proposed MCL's and monitoring requirements	November 13, 1985 50 FR 46880
Final MCL's and monitoring requirements	July 8, 1987 52 FR 25690
Proposed amendments to monitoring requirements	January 30, 1991 56 FR 3600
SOC's, IOC's	
Advance notice of proposed rulemaking for 38 SOC's and IOC's (Phase II)	October 5, 1983 48 FR 45502
Proposed MCLG's	November 13, 1985 50 FR 46936
Reproposed MCLG's, proposed MCL's and monitoring requirements	May 22, 1989 54 FR 22062
Final rule for 33 SOC's and IOC's	January 30, 1991 56 FR 3526
Reproposed MCLG's, MCL's and monitoring requirements for 5 SOC's and IOC's	January 30, 1991 56 FR 3600
Final rule for MCLG's and monitoring requirements for 5 SOC's and IOC's	July 1991
Proposed rule for 24 SOC's and IOC's (Phase V)	July 25, 1990 55 FR 30370
Final rule expected	March 1992
Proposed rule expected for approx. 15 SOC's and IOC's (Phase VI B)	June 1993
Final rule expected for approx. 15 SOC's & IOC's	June 1995 54 FR 27486

TABLE A-6. NATIONAL PRIMARY DRINKING WATER REGULATIONS STATUS (Continued)

Action	Date/Federal Register Citation
Surface Water Treatment Requirements	
Proposed MCLG's, MCL's, treatment technique and monitoring	November 3, 1987 52 FR 42178
Final Rules	June 29, 1989
Total Coliforms	
Proposed rules	November 3, 1987 52 FR 42224
Additional Regulatory Options proposed	May 6, 1988 53 FR 16340
Final Rule	June 29, 1989 54 FR 27544
Fluoride	
Advance notice of proposed rulemaking	October 5, 1983 48 FR 45502
Proposed MCLG	May 14, 1985 50 FR 20164
Final MCLG, proposed MCL, SMCL and monitoring requirements	November 14, 1985 50 FR 47142
Final MCL, SMCL, monitoring requirements	April 2, 1986 51 FR 11396
Three-year reassessment begun as required under SDWA amendments	January 3, 1990 55 FR 160
Radionuclides	
Advance notice of proposed rulemaking	September 30, 1986 51 FR 34836
Proposed rule expected for MCLG's, MCL's, BAT's and monitoring requirements	July 1991
Final rule expected	April 1993
Disinfectants and Disinfection By-products	
Interim MCL for total trihalomethanes	November 29, 1979 44 FR 68624

TABLE A-6. NATIONAL PRIMARY DRINKING WATER REGULATIONS STATUS (Continued)

Action	Date/Federal Register Citation
Disinfectants and by-products included on Drinking Water Priority List	January 22, 1988 53 FR 1982
Proposed rules expected for MCLG's, MCL's and monitoring requirements for approximately 10 contaminants (Phase VI A)	June 1993
Final rules expected for MCLG's, MCL's and monitoring requirements for approximately 10 contaminants	June 1995
Lead/Copper	
Advance notice of proposed rulemaking	October 5, 1983 48 FR 45502
Proposed MCLG's	November 13, 1985 50 FR 46836
Reproposed MCLG's and proposed MCL's and treatment techniques	August 18, 1988 53 FR 31516
Final Rule expected for MCLG's, MCL's and treatment techniques	June 7, 1991 56 FR 26460
Drinking Water Priority List/Substitutes:	
Proposed	July 8, 1987 52 FR 25720
Final	January 22, 1988 53 FR 1982
Revised list (1991 version)	January 14, 1991 56 FR 1470