



CURRENT FEDERAL INDOOR AIR QUALITY ACTIVITIES

**Prepared with the cooperation of the Interagency
Committee on Indoor Air Quality (CIAQ)**

Compiled by:

Office of Atmospheric and Indoor Air Programs
Office of Air and Radiation
U.S. Environmental Protection Agency

August 1989



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ABOUT THIS PUBLICATION

This publication is the 1989 update of the list of Federal indoor air quality activities that was originally issued in March 1988.

Title IV of the Superfund Amendments and Reauthorization Act (SARA) of 1986 requires EPA to establish a committee comprised of the Federal agencies concerned with various aspects of indoor air quality (IAQ) and to coordinate Federal IAQ activities. The Interagency Committee on Indoor Air Quality (CIAQ) functions as the primary Federal coordination mechanism.

Through the CIAQ, each Federal agency was asked to supply a list of its current and ongoing research, policy, and program development activities in the field of indoor air quality. The responses to that request make up the content of this publication. The primary purpose for compiling this information is to provide individuals in the Federal community with a useful tool for coordinating their activities at the project level. This publication has proven to be useful to many individuals and organizations outside the Federal government as well.

For each agency, the major indoor air activities are identified, along with a brief description of the activity, its current status and/or projected completion date, the agency/office responsible, and a contact name and phone number. In addition, this update also includes a section listing the indoor air related publications for the public that are available from Federal agencies. Due to inevitable changes in the status of many of these activities, this publication will be updated annually.

The information for this chart was compiled by the Indoor Air Division (ANR-445), Office of Air and Radiation, U.S. Environmental Protection Agency, 401 M Street S.W., Washington, D.C. 20460.

PLEASE NOTE:

THE INFORMATION CONTAINED IN THIS PUBLICATION WAS CURRENT AS OF MAY 1989. HOWEVER, ALL INFORMATION SHOULD BE CONSIDERED SUBJECT TO CHANGE WITHOUT NOTICE. FOR THE MOST CURRENT INFORMATION, INDIVIDUALS LISTED FOR EACH PROJECT SHOULD BE CONTACTED DIRECTLY.

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GLOSSARY OF FEDERAL GOVERNMENT AGENCY/OFFICE NAMES AND ACRONYMS

CIAQ Interagency Committee on Indoor Air Quality

CIAQ Co-Chair Agencies:

EPA U.S. Environmental Protection Agency

OA Office of Administrator

OAR Office of Air and Radiation

OAIAP Office of Atmospheric and Indoor Air Programs

ORP Office of Radiation Programs

ORD Office of Research and Development

AEERL Air and Energy Engineering Research Laboratory

AREAL Atmospheric Research and Exposure Assessment Laboratory

ECAO Environmental Criteria and Assessment Office

EETD Environmental Engineering and Technology Demonstration

HERL Health Effects Research Laboratory

HHAG Human Health Assessment Group

OMMSQA Office of Modelling, Monitoring Systems and Quality Assurance

OTTRS Office of Technology Transfer and Regulatory Support

OPTS Office of Pesticides and Toxic Substances

OTS Office of Toxic Substances

OPP Office of Pesticides Programs

OW Office of Water

ODW Office of Drinking Water

OPPE Office of Policy, Planning and Evaluation

RID Regulatory Integration Division

CPSC U.S. Consumer Product Safety Commission

DOE U.S. Department of Energy

OBCS Office of Buildings and Community Systems

CE Conservation and Renewable Energy

OEA Office of Environmental Analysis

ER Energy Research

OHER Office of Health and Environmental Research

ORAW Office of Remedial Action and Waste

LBL Lawrence Berkeley Laboratory

NE Nuclear Energy

EH Environmental, Safety, and Health

DHHS U.S. Department of Health and Human Services

CDC Centers for Disease Control

NIOSH National Institute for Occupational Safety and Health

CEHIC Center for Environmental Health and Injury Control

CCDPPH Center for Chronic Disease Prevention and Health Promotion

NCHS National Center for Health Statistics

NIH National Institute of Health

NIEHS National Institute of Environmental Health Sciences

NIAID National Institute of Allergy and Infectious Diseases

NCI National Cancer Institute

NHLBI National Heart, Lung and Blood Institute

NIDR National Institute of Dental Research

HRSA Health Resources and Services Administration

DFOBHS Division of Federal Occupational and Beneficiary Health Services

ATSDR Agency for Toxic Substances and Disease Registries

GLOSSARY OF FEDERAL GOVERNMENT AGENCY/OFFICE NAMES AND ACRONYMS (continued)

Other Federal Agencies:

BPA	Bonneville Power Administration
DOC	U.S. Department of Commerce
NIST	National Institute of Standards and Technology (formerly the National Bureau of Standards)
DOD	U.S. Department of Defense
DOA	Department of the Army
DON	Department of the Navy
USAF	U.S. Air Force
OEHL	Occupational and Environmental Health Laboratory
DOI	U.S. Department of the Interior
NPS	National Park Service
USGS	U.S. Geological Survey
DOL	U.S. Department of Labor
OSHA	Occupational Safety and Health Administration
DOS	U.S. Department of State
DOT	U.S. Department of Transportation
OST	Office of the Secretary of Transportation
GSA	General Services Administration
NCR	National Capital Region
HUD	U.S. Department of Housing and Urban Development
PD&R	Office of Policy Development and Research
LOC	Library of Congress
CRS	Congressional Research Service
NASA	National Aeronautics and Space Administration
TVA	Tennessee Valley Authority

OTHER ACRONYMS/ABBREVIATIONS

ASTM	American Society of Testing and Materials
CO	Carbon Monoxide
CEC	Commission of European Communities
ETS	Environmental Tobacco Smoke
HVAC	Heating, Ventilating, and Air Conditioning
IAP	Indoor Air Pollution
IAQ	Indoor Air Quality
IAQIV	Indoor Air Quality and Infiltration/Ventilation
MCLs	Maximum Contaminant Levels
MOU	Memorandum of Understanding
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NHANES III	Third National Health and Nutrition Examination Survey
NO₂	Nitrogen Dioxide
PAHs	Polycyclic Aromatic Hydrocarbons
SARA	Superfund Amendments and Reauthorization Act of 1986
pCi/l	Picocuries per liter
SBS	Sick Building Syndrome
SVOCs	Semivolatile Organic Chemicals
TEAM	Total Exposure Assessment Methodology
UL	Underwriters' Laboratory
VOCs	Volatile Organic Chemicals

INDOOR AIR ACTIVITIES WITHIN THE U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CONSOLIDATED INDOOR AIR ACTIVITIES				
Overview and Coordination				
CIAQ Co-chair	Coordinate Federal research and policy on IAQ issues.	Ongoing.	EPA/OAR/OAIAP	Eileen Claussen (202) 382-7404 (FTS) 382-7404
Report to Congress (Title IV Section 403(e) of the Superfund Amendments and Reauthorization Act of 1986)	Describe activities carried out under SARA Title IV and related activities by other Federal agencies. Make appropriate recommendations.	Submitted to Congress: 8/89.	EPA/OAR/OAIAP	Lisa Adams (202) 475-8470 (FTS) 475-8470
Policy Development				
Credentialing Study	Identify and assess issues involved in providing private and/or public sector oversight of firms that provide diagnostic and remedial indoor air quality services.	Draft first issue paper and hold preliminary discussion: 10/89.	EPA/OAR/OAIAP	David Mudarri (202) 475-8592 (FTS) 475-8592
Technical Program Strategy Document	Develop a framework for identifying and evaluating appropriate parameters of acceptable indoor air quality.	Anticipated completion of draft paper: Winter 1989 - 1990.	EPA/OAR/OAIAP	Pauline Johnston (202) 382-2871 (FTS) 382-2871
Training Needs Analysis	Develop long range training plan.	Draft strategy: Fall 1989.	EPA/OAR/OAIAP	Camille Lee (202) 245-4100 (FTS) 245-4100
Buildings Program				
Commercial Building Design Guide (for New or Remodeled Public and Commercial Buildings)	Provide guidance on preventing IAQ problems in commercial and public buildings.	Draft manual: Fall 1989. Anticipated date for final manual: Spring 1990.	EPA/OAR/OAIAP	Jim Repace (202) 475-8593 (FTS) 475-8593

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Study of LOC and EPA Headquarters Buildings (LOC study w/DOE, NIOSH; also see EPA/ORD entry)	Use occupant surveys and indoor air monitoring to identify indoor air quality problems in selected buildings. Make appropriate recommendations for improving indoor air quality.	Occupant surveys and indoor air monitoring completion date: Spring 1989. Preliminary report: Fall 1989.	EPA/OARM/OHRM	David Weitzman (202) 382-3640 (FTS) 382-3640
			EPA/ORD/OTTRS	Kevin Teichman (202) 382-7669 (FTS) 382-7669
			EPA/OAR/OAIAP	Bob Axelrad (202) 475-7174 (FTS) 475-7174
Private Sector Survey	Identify and characterize private sector firms providing IAQ diagnostic and mitigation services.	Final report: Summer 1989.	EPA/OAR/OAIAP	David Mudarril (202) 475-8592 (FTS) 475-8592
Manual for Prevention of IAQ Problems in New Home Construction	Provide guidance to homebuilders, architects, and home owners on techniques to prevent IAQ problems in the construction of new homes.	Draft document: Fall 1989; anticipated completion of final document: Winter 1989-90.	EPA/OAR/OAIAP	Betsy Agle (202) 382-7753 (FTS) 382-7753
Model School District Indoor Air Quality Management Plan	Develop model school IAQ management plan for school districts.	Anticipated completion date for model management plan: 12/89.	EPA/OAR/OAIAP	David Mudarril (202) 475-8592 (FTS) 475-8592
Pollutant/Source Program				
Environmental Tobacco Smoke Lung Cancer Risk Assessment	Prepare an EPA risk assessment for environmental tobacco smoke.	In preparation. Draft anticipated: Winter 1989-1990.	EPA/ORD/HHAG	Steve Bayard (202) 382-5722 (FTS) 382-5722
			EPA/OAR/OAIAP	Bob Axelrad (202) 475-7174 (FTS) 475-7174
Environmental Tobacco Smoke Manual (w/DHHS)	Provide technical and policy guidance for mitigating risks from environmental tobacco smoke.	Completion: Winter 1989-1990.	EPA/OAR/OAIAP	Jim Repace (202) 475-8593 (FTS) 475-8593

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ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Chlordane/Radon Mitigation Project	Coordinate research into effectiveness of radon mitigation methods to reduce chlordane levels.	Draft final report: 12/89	EPA/OAR/OAIAP EPA/ORD/AEERL	Betsy Agle (202) 382-7753 (FTS) 382-7753 Ron Mosley (919) 541-7865 (FTS) 629-7865
Intergovernmental Program				
Introductory IAQ Course Module (w/Public Health Service and National Environmental Health Association)	Provide introductory training manual to State and local officials on IAQ issues.	Anticipated completion date: Winter 1989.	EPA/OAR/OAIAP	David Mudari (202) 475-8592 (FTS) 475-8592
Pilot project with EPA Region X (in Seattle)	Provide model regional public information program.	In progress.	EPA/OAR/OAIAP	Betsy Agle (202) 382-7753 (202) 382-7753
List of Federal Indoor Air Quality Activities	Describe Federal IAQ activities.	Published in 1988 and 1989. To be updated annually.	EPA/OAR/OAIAP	Betsy Agle (202) 382-7753 (FTS) 382-7753
NATO-CCMS Pilot Study	Inventory research risk management strategies of member countries.	NATO-CCMS meeting scheduled for Washington DC: 10/89.	EPA/OAR/OAIAP	Elissa Feldman (202) 475-8470 (FTS) 475-8470
Public Information Program				
Publication and Distribution of IAQ Materials	Develop appropriate written materials that describe indoor air quality problems and mitigation/prevention actions for the general public.	See publications section.	EPA/OAR/OAIAP	Betsy Agle (202) 382-7753 (FTS) 382-7753
Evaluate Indoor Air Booklet	Evaluate effectiveness of booklet "The Inside Story: A Guide to Indoor Air Quality"	Initiated: 5/89	EPA/OPPE/OAR	Ann Fisher (202) 382-5500 (FTS) 382-5500

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
IAQ RESEARCH ACTIVITIES				
Program Management				
Matrix Manager: ORD IAQ Research Program	Identify and coordinate research needed to fill existing information gaps.	Ongoing.	EPA/ORD/ECAO	Michael Berry (919) 541-4172 (FTS) 629-4172
Headquarters Coordinator, EPA Indoor Air Research Program	Headquarters coordination of EPA Indoor Air Research Program	Ongoing.	EPA/ORD/OTTRS	Kevin Teichman (202) 382-7669 (FTS) 382-7669
Research Coordinator for the Committee on Indoor Air Quality (CIAQ)	Coordinate Federal government research efforts related to IAQ.	Ongoing.	EPA/ORD/OTTRS	Kevin Teichman (202) 382-7669 (FTS) 382-7669
ORD Indoor Air Research Budget	Coordinate Federal government research efforts related to IAQ.	Ongoing.	EPA/ORD/ECAO	Norman Childs (919) 541-2229 (FTS) 629-2229
Program Manager: Health Effects Research Laboratory's IAQ Research Program	Coordinate the health effects research studies of the indoor air program.	Ongoing.	EPA/ORD/HERL	Ila Cote (919) 541-4922 (FTS) 629-4922
Program Manager: Air and Energy Engineering Research Laboratory's IAQ Research Program	Coordinate the emissions testing, modeling, chamber studies, and test-home studies of the indoor air program.	Ongoing.	EPA/ORD/AEERL	Gene Tucker (919) 541-2746 (FTS) 629-2746
Program Manager: Atmospheric Research and Exposure Assessment Laboratory's IAQ Research Program	Coordinate monitoring studies of the indoor air program.	Ongoing.	EPA/ORD/AREAL	Ross Highsmith (919) 541-7828 (FTS) 629-7828
Indoor Air Reference Data Base	Maintain an extensive bibliography of reference materials on indoor air pollution.	Publication of data base containing over 3400 citations: 7/89.	EPA/ORD/ECAO	Norman Childs (919) 541-2229 (FTS) 629-2229
ORD IAQ Research Activities Listing	Develop and maintain list of ORD IAQ activities.	Ongoing.	EPA/ORD/ECAO	Norman Childs (919) 541-2229 (FTS) 629-2229

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ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Monitoring				
Low Cost Personal Monitoring Devices for Indoor Air	Develop and evaluate low cost, comfortable personal monitoring and sampling devices that can be worn during normal activities.	NO ₂ device complete; journal articles: 2/89, 6/89; laboratory evaluation of devices for VOCs and formaldehyde in progress; papers presented: 10/88, 11/88, 5/89; 2nd generation prototype real-time NO ₂ personal exposure monitor constructed; delivered to EPA: 9/88; final version of the real-time NO ₂ personal exposure monitor to be delivered: 9/89.	EPA/ORD/AREAL	Jim Mulik (919) 541-3067 (FTS) 629-3067
LOC and EPA Building Studies (LOC Study w/DOE, NIOSH, also see EPA/OAR entry)	Use occupant surveys and indoor air monitoring to identify indoor air problems in selected buildings. Make appropriate recommendations for improving indoor air quality.	Survey questionnaire developed: 1/89; survey administered: 2/89; monitoring completed: 3/89; analysis to be completed: 6/89; field report: 8/89; exposure assessment: 12/89.	EPA/ORD/AREAL	Ross Highsmith (919) 541-7828 (FTS) 629-7828
Portable Humidifiers Study	Evaluate the relationship between water quality used in humidifiers and the impact on indoor particle levels.	Journal article: 9/88; analysis complete: 3/89; second journal article: 9/89.	EPA/ORD/AREAL	Ross Highsmith (919) 541-7828 (FTS) 629-7828
Sampling Methods for VOCs in Indoor Air	Design, develop, and evaluate an air sampler for semivolatile organic compounds that is suitable in microenvironments.	Prototype samplers complete; field evaluation in progress; reports: 6/88, 7/88, 10/88; papers presented: 5/89, 9/89; journal articles: 4/89, 6/89, 9/89.	EPA/ORD/AREAL	Nancy Wilson (919) 541-4723 (FTS) 629-4723
Methods for Chemical Characterization of Polar VOCs in Indoor Air	Develop, evaluate, and improve methodology for the characterization of semivolatile polar organic compounds.	Characterization of polar compounds ongoing; report: 3/88; papers presented: 4/88, 5/88, 10/88, 5/89; journal articles: 2/88, 9/89.	EPA/ORD/AREAL	Nancy Wilson (919) 541-4723 (FTS) 629-4723

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Field Study: VOCs in Indoor Exposures from Personal Activities	Identify personal activities which increase exposure to VOCs and other pollutants.	Final report: 10/89.	EPA/ORD/AREAL	Ross Highsmith (919) 541-7828 (FTS) 629-7828
Demonstration Study of Microenvironmental Measurement Methods	Evaluate available sampling equipment and develop sampling protocols.	Analyses completed: 4/89; final report: 9/89.	EPA/ORD/AREAL	Ross Highsmith (919) 541-7828 (FTS) 629-7828
IAQ Risk Study Assessment	Determine information needed for a source category risk assessment; develop means to obtain this information.	Design of model study: 5/89; field study to be completed: 8/89; final report: 10/89.	EPA/ORD/AREAL	David Holland (919) 541-3128 (FTS) 629-3128
Indoor Dispersion/ Ventilation Model	Validate the NBS general indoor air quality model to ensure diagnostic capabilities for sick buildings.	Validate NBS model: 7/88; final report: 9/89.	EPA/ORD/AREAL	John Irwin (919) 541-1323 (FTS) 629-1323
Methodology for Measuring Temporal Variability of VOCs in Indoor Air	Evaluate peak exposures to indoor pollutants from household products, combustion sources, and water off-gassing.	Final report: 2/89.	EPA/ORD/AREAL	Joachim Pleil (919) 541-4680 (FTS) 629-4680
Compendium of Indoor Air Quality Measurement Methods	Compile most commonly used IAQ measurement methods for technical guidance documents.	First draft: 8/88; first revision: 8/89.	EPA/ORD/AREAL	Ross Highsmith (919) 541-7828 (FTS) 629-7828
Methods for Sampling VOCs in Breath	Develop and improve methods for sampling VOCs in breath. Use canister for sampling very volatile VOCs and for single-breath samplings.	Report on method: 6/89. Pilot field study: 12/89.	EPA/ORD/AREAL	Bill Nelson (919) 541-3184 (FTS) 629-3184
TEAM Study: Indoor Air Study of 4 Public Buildings	Qualitatively identify VOCs occurring in buildings and quantitatively determine concentrations of 20 target VOCs. Examine new office buildings to monitor changes in VOC levels and measure emissions from common building materials.	Final report: 9/88.	EPA/ORD/OMMSQA	Lance Wallace (202) 382-5792 (FTS) 382-5792

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ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
TEAM Study: Indoor Air Study of 6 Public Buildings	Continuation of previous TEAM Studies.	Final report: 9/88.	EPA/ORD/OMMSQA	Lance Wallace (202) 382-5792 (FTS) 382-5792
TEAM Study: VOCs in Los Angeles, Baltimore and New Jersey	Determine personal exposures to 25 VOCs. Examine spatial variations in VOC concentrations inside homes. Determine source strengths (e.g. smoking, wearing dry cleaned clothes).	Final report: 9/89.	EPA/ORD/OMMSQA	Lance Wallace (202) 382-5792 (FTS) 382-5792
TEAM Study: Particle Study	Examine indoor particle concentrations.	Monitoring instrument developed and tested. Small scale pilot study to be completed: 3/89.	EPA/ORD/OMMSQA	Lance Wallace (202) 382-5792 (FTS) 382-5792
Methods to Calculate Total VOCs from GC/MS Samples	Develop methods to calculate total VOC loadings from GC/MS samples. Apply to previous TEAM studies.	Final report on 3000 samples: 6/89.	EPA/ORD/OMMSQA	Lance Wallace (202) 382-5792 (FTS) 382-5792
Health Effects Research				
Biological Markers for ETS Exposure Assessment in Children in Homes	Evaluate and identify chemical and biological markers specific to ETS exposure to provide data on the relationship between dose and response.	Papers presented: 8/87; journal articles: 12/88, 9/89.	EPA/ORD/HERL	Joellen Lewtas (919) 541-3849 (FTS) 629-3849
Cotinine as a Biomarker of ETS Exposure in Children and Adults	Determine if urine cotinine levels in children can be used to indicate exposure to ETS; improve cotinine detection methods.	Papers presented: 8/87, 9/87. Relationship between personal exposure to nicotine and cotinine levels established: 3/90.	EPA/ORD/HERL	Joellen Lewtas (919) 541-3849 (FTS) 629-3849
Mutagenicity and Exposure Assessment of Unvented Kerosene Heaters in Mobile Homes	Evaluate human exposure to mutagens, PM10, gas-phase organic compounds, acid aerosols, and criteria pollutants from indoor unvented combustion sources.	Planning stage. Field study to be initiated: 2/89.	EPA/ORD/HERL	Judy Mumford (919) 541-3095 (FTS) 629-3095

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Neurobehavioral and Sensory Irritant Effects of Complex VOC Mixtures in Humans	Corroborate and extend Danish studies of human exposures to complex gas-phase organic compound mixtures which result in SBS.	Initiate replication of Danish study. 5/88; complete data collection: 5/89; report: 3/90.	EPA/ORD/HERL	David Otto (919) 966-6229 (no FTS)
HERL Quality Assurance Support for the Indoor Air Program	Provide uniform quality assurance of all indoor air research projects to insure high quality results.	Ongoing.	EPA/ORD/HERL	Ferris Benson (919) 541-7673 (FTS) 629-7673
Mutagenicity of Individual Indoor Air Mixtures	Provide insight into the possible carcinogenicity of indoor air pollutants and pollutant mixtures commonly encountered in real-life situations.	Ongoing.	EPA/ORD/HERL	Larry Claxton (919) 541-2329 (FTS) 629-2329
Exposure and Risk Assessment				
Risk Characterization Methodology	Develop methodology to assess human health risks from specific categories of indoor air pollutants. Use the framework to compare the results of existing risk characterization studies.	Draft report of first phase complete: 1988.	EPA/ORD/ECAO	Michael Berry (919) 541-4172 (FTS) 629-4172
Assessment of Biological Contaminants in Indoor Environments	Prepare an information assessment of biological contaminants in indoor environments, including sources, monitoring methods, health effects, and mitigation techniques.	Study to be completed: 9/89.	EPA/ORD/ECAO	Harriet Ammann (919) 541-4930 (FTS) 629-4930
Population Exposure Studies	Determine concentrations of indoor air pollutants and activity patterns to estimate the population exposure to various indoor pollutants.	Workshop on indoor air exposure/risk assessment held: 11/30/87.	EPA/ORD/ECAO	Harriet Ammann (919) 541-4930 (FTS) 629-4930
Indoor Air Pollution Information Assessment	Update and revise information assessment to provide current information on indoor pollutants.	Ongoing review of current literature to obtain a clear understanding of the hazards posed.	EPA/ORD/ECAO	Harriet Ammann (919) 541-4930 (FTS) 629-4930

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Data Analysis	Graphically represent indoor air pollution exposure data, compare indoor and outdoor pollution levels, and evaluate health effects data at various exposure levels.	Ongoing.	EPA/ORD/ECAO	Michael Berry (919) 541-4172 (FTS) 629-4172
Source Characterization and IAQ Control				
Chamber Studies of Organic Emissions from Material Sources	Develop methods for determining emissions from indoor materials/products; evaluate the effects of environmental variables on emission rate; evaluate indoor "sink" materials and describe their adsorption and re-emission characteristics; evaluate source modifications as IAQ control techniques.	Ongoing. Second draft of ASTM Standard Guide on small chamber testing: 11/88; interlaboratory comparison with Univ. of Aarhus: ongoing; 15 technical papers and presentations completed: 1/89.	EPA/ORD/AEERL	Bruce Tichenor (919) 541-2991 (FTS) 629-2991
Chamber Studies of Emissions from Unvented Combustion	Develop emission factors for organic pollutants from unvented combustion sources; develop emission models; rank the health significance of sources.	Kerosene study initiated: 11/86; further characterization of acid aerosols from kerosene heaters: 2/89; reports completed: 10/89.	EPA/ORD/AEERL	James White (919) 541-1189 (FTS) 629-1189
Leakage from Vented Gas-fired Appliances	Evaluate leaks of flue gas from vented gas appliances in homes.	Phase I development of method initiated: 11/87; phase II evaluation of 200 homes to begin: 11/89.	EPA/ORD/AEERL	James White (919) 541-1189 (FTS) 629-1189
Evaluation of Indoor "Sinks"	Determine the behavior of indoor materials that act as sinks for organic compounds; develop data that describe the rate at which organics are adsorbed by and re-emitted from indoor sinks.	Ongoing.	EPA/ORD/AEERL	Bruce Tichenor (919) 541-2991 (FTS) 629-2991

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Test House Studies of Indoor Sources	Develop emissions testing procedures for organic compounds; generate emission factors and models; compare these to chamber measurements.	Ongoing. Unvented kerosene heaters paper: 8/87; moth-cake emissions paper: 5/88; perchloroethylene emissions report: 10/88.	EPA/ORD/AEERL	Merrill Jackson (919) 541-2559 (FTS) 629-2559
Acid Aerosols from Portable Kerosene Space Heaters	Develop data for exposure assessment and model validation on acid aerosol emissions from kerosene space heaters used in mobile homes.	Pilot field study initiated: 2/89. (See also Health Effects Research.)	EPA/ORD/AEERL	James White (919) 541-1189 (FTS) 629-1189
Procedures to Determine Air Exchange Rates	Develop accurate, low cost, easy-to-use methods to determine air exchange rates.	Research and monitoring initiated: 7/87.	EPA/ORD/AEERL	Leslie Sparks (919) 541-2458 (FTS) 629-2458
IAQ Evaluation of Three Office Buildings	Study IAQ of 3 buildings: one with a reported SBS problem, one constructed to optimize IAQ, and one control.	Initiate study: Spring 1987, complete sampling: Fall 1987	EPA/ORD/AEERL	Gene Tucker (919) 541-2746 (FTS) 629-2746
Data Base of Indoor Air Pollutant Sources (DIAPS)	Maintain an up-to-date data base of indoor air source emissions.	Ongoing. Version 2.0 released: 8/89.	EPA/ORD/AEERL	James White (919) 541-1189 (FTS) 629-1189
IAQ Data Base for Organic Compounds	Compile data on measured concentrations of vapor-phase organic compounds in buildings into Lotus 1-2-3 data base.	Ongoing. Draft report: 10/88.	EPA/ORD/AEERL	Max Samfield (919) 541-1506 (FTS) 629-1506
Evaluation of IAQ Control Alternatives	Evaluate relative merits (cost and effectiveness) of methods for improving IAQ. Methods to be evaluated include low-emitting products, ventilation, and air cleaners.	Ongoing.	EPA/ORD/AEERL	Leslie Sparks (919) 541-2458 (FTS) 629-2458

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
IAQ Model	Develop an easy-to-use tool for assessing IAQ problems, conducting risk analysis, and evaluating control options.	Ongoing. Version 1.0 published: 8/88.	EPA/ORD/AEERL	Leslie Sparks (919) 541-2458 (FTS) 629-2458
Determination of Air Flows in Buildings	Develop low cost, easy-to-use methods for measuring air flows between rooms and HVAC, between rooms and outdoors, and other important indoor air flows (e.g., to exhaust fans).	Ongoing.	EPA/ORD/AEERL	Leslie Sparks (919) 541-2458 (FTS) 629-2458
Technical Support to Program Offices	Provide short-term responses to requests from EPA program offices regarding emissions from indoor materials and products.	Ongoing. Report on perchloroethylene emissions from dry-cleaned fabrics for OAR and OTS: 10/88; assessments of organics emissions from Waterside Mall carpet and office partitions for OA: 8/88; evaluation of materials to be used in new EPA headquarters building for Project 1992: in process.	EPA/ORD/AEERL	Bruce Tichenor (919) 541-2991 (FTS) 629-2991
Other Projects				
IAQ Questions for NHANES III	Add questions to NHANES study that will permit analysis of contribution of indoor air pollution sources to health problems identified in survey.	Ongoing.	EPA/ORD/OHEA	Sherry Selevan (202) 382-2604 (FTS) 382-2604
Integrated Environmental Management Project	Compare levels of air pollution inside and outside homes. Do statistical analysis of personal exposure, indoor, and outdoor data.	Air quality measurements for 30 compounds in 200 Baltimore homes completed: 1988. Final report due: 3/89. Statistical analysis due: Fall 1989.	EPA/OPPE/RID	Andy Manale (202) 382-6365 (FTS) 382-6365

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Risk Communication for Air Toxics	Use focus groups to develop strategy for communicating significance of monitoring results to volunteers of research projects and to other interested parties.	Advisory group identified. Contract awarded. Report due: late 1989.	EPA/OPPE/RID	Andy Manale (202) 382-6365 (FTS) 382-6365
RADON ACTIVITIES				
Regulatory Proposal for Radionuclides in Drinking Water	Address measurement of certain radionuclides, and collect and develop water treatment data for removal of radionuclides from drinking water in support of regulation development.	Advance notice of proposed rule-making scheduled: 1988. Anticipated promulgation proposed rule: 1990.	EPA/OW/ODW	Irwin Pomerantz (202) 382-3026 (FTS) 382-3026
Study of Radon Removal Techniques for Water	Determine the effectiveness of systems to remove radon from drinking water.	Ongoing.	EPA/OW/ODW	Kim Fox (513) 569-7820 (FTS) 684-7820
Report on Radon Removal from Drinking Water	Prepare a report based on historical records on the design, operation, and cost associated with the GAC point of entry systems.	New.	EPA/OW/ODW	Kim Fox (513) 569-7820 (FTS) 684-7820
Radon Education and Awareness for Health Workers	Inform health professionals about the risks associated with indoor radon.	New.	EPA/OAR/ORP	Mary Culler (202) 475-9605 (FTS) 475-9605
Building Site Characterization	Investigate the methods to characterize the radon potential of building sites.	Ongoing.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605
Butte, Montana Radon Report	Report the results of extensive measurements in 68 homes in Butte, Montana.	Ongoing.	EPA/OAR/ORP	Mike Boyd (202) 475-9605 (FTS) 475-9605
Comparison of Geology and Indoor Radon	Develop methodology to identify high radon potential areas.	Ongoing.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Committee on Indoor Air Quality and Radon Workgroup (w/DOE)	Provide updates to the CIAQ on pending federal radon legislation, ongoing programs, and other issues.	Ongoing.	EPA/OAR/ORP	Bonnie Chiles (202) 475-9605 (FTS) 475-9605
EPA 1988 Update and Revision of Training Course: "Reducing Radon in Structures"	Expand and update the EPA training course for radon diagnosticians and mitigators.	New.	EPA/OAR/ORP	Lawrence Pratt (202) 475-9605 (FTS) 475-9605
House Evaluation Program	Evaluate the cost and effectiveness of mitigation methods and provide hands-on training.	Ongoing.	EPA/OAR/ORP	Gene Fisher (202) 475-9605 (FTS) 475-9605
Education in Housing Industry on Radon in Homes	Educate the building industry on state-of-the-art radon mitigation and prevention techniques.	Ongoing.	EPA/OAR/ORP	Dave Murane (202) 475-9605 (FTS) 475-9605
Land Evaluation Studies--Coastal Plain Characterization	Assist EPA in determining the geological characteristics of a low radon potential area.	Ongoing.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605
National Equivalent Uranium Map Production (w/DOI)	Reprocess U.S. DOE National Uranium Resource Evaluation (NURE) aerial radiometric data.	Ongoing.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605
Technical Assistance for Indoor Radon	Deliver a national surface radium map and report using National Uranium Resource Evaluation (NURE) summary statistics.	Final year.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605
Technical Support of EPA Radon Programs (w/ DOI)	Identify high radon risk areas within EPA Regions III and IV.	Ongoing.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605
Technical Assistance for State Radon Surveys (w/DOI)	Provide geological assessments of statewide radon potential.	Ongoing.	EPA/OAR/ORP	Tom Peake (202) 475-9605 (FTS) 475-9605

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
National Conference of State Legislatures Cooperative Agreement State Radon Programs	Provide educational material on radon and policy options available to State legislators.	New.	EPA/OAR/ORP	Bonnie Chiles (202) 475-9605 (FTS) 475-9605
National Assessment of Radon Gas (SARA section 118(k)) Report to Congress	Describe locations in the U.S. where radon is found, and assess levels in these structures. Determine the level of radon gas and radon daughters which poses a health threat, and assess the health threat for structures identified above; determine methods of reducing or eliminating the human health threat of radon gas and radon daughters. Include guidance and public information materials on mitigating radon.	Ongoing.	EPA/OAR/ORP	Jacelyn Dziuban (202) 475-9605 (FTS) 475-9605
National Database of Indoor Radon Measurements	Prepare a database that will contain radon measurements made by EPA and private vendors.	New.	EPA/OAR/ORP	Mark Dickson (202) 475-9605 (FTS) 475-9605
National Residential Radon Survey	Estimate the frequency distribution of annual average radon exposures in U.S. homes using year-long measurements, and assess correlations between residential radon concentrations and various factors.	Ongoing.	EPA/OAR/ORP	Lisa Feldt (202) 475-9605 (FTS) 475-9605
New House Evaluation Program	Transfer technology for constructing radon resistant buildings to private sector, and provide data for the development of model building codes.	Ongoing.	EPA/OAR/ORP	Dave Murane (202) 475-9605 (FTS) 475-9605

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Radon Measurement Proficiency Program (RMP)	Test capabilities of companies measuring indoor radon, and provide the public with a mechanism for identifying qualified testing companies.	Ongoing.	EPA/OAR/ORP	Phil Jalbert (202) 475-9605 (FTS) 475-9605
Radon Measurements in Schools	Collect data on radon and radon progeny concentrations in schools.	Ongoing. Interim report on study in Fairfax County, VA completed. Study will continue during the 1988-1989 school year. Guidance document is also available.	EPA/OAR/ORP	Anita Schmidt (202) 475-9605 (FTS) 475-9605
Radon Mitigation and Prevention in Schools and Workplaces	Transfer information developed by EPA on radon mitigation and prevention in larger buildings to the States and private sector.	New.	EPA/OAR/ORP	Mike Boyd (202) 475-9605 (FTS) 475-9605
Revisions to EPA Radon Measurement Protocols	Revise EPA Radon Measurement Protocols to include new methods for measuring indoor radon and radon decay products.	Final year.	EPA/OAR/ORP	Mike Boyd (202) 475-9605 (FTS) 475-9605
State/EPA Indoor Radon Survey	Help States identify areas where elevated radon levels (hot spots) may occur, and estimate the Statewide and regional frequency distribution of screening measurement results.	Ongoing.	EPA/OAR/ORP	Jacelyn Dziuban (202) 475-9605 (FTS) 475-9605
State Mitigation Contractor Survey	Collect information on the size and nature of the radon mitigation and prevention industry, obtain information on the effectiveness of specific radon mitigation and prevention techniques and on the effectiveness of private sector efforts to reduce radon levels.	New.	EPA/OAR/ORP	John Hoonbeek Dave Murane (202) 475-9605 (FTS) 475-9605

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Superfund Cooperative Project	Apply existing mitigation techniques to Superfund sites with high levels of radon to reduce human health risks.	Ongoing.	EPA/OAR/ORP	Gene Fisher (202) 475-9605 (FTS) 475-9605
Teacher Training Workshop for EPA Radon Diagnostician and Mitigation Training Course	Train instructors for the EPA "Reducing Radon in Structures" course.	Ongoing.	EPA/OAR/ORP	Lawrence Pratt (202) 475-9605 (FTS) 475-9605
Workplace Protocol Development and Survey	Develop national protocols for measuring radon in workplaces. Conduct a national survey of radon in workplaces.	New.	EPA/OAR/ORP	Mike Boyd (202) 475-9605 (FTS) 475-9605
New House Evaluation Protocol Project	Develop protocols for evaluating the effectiveness of specific construction techniques preventing radon entry into new homes.	Ongoing.	EPA/OAR/ORP	Dave Murane (202) 475-9605 (FTS) 475-9605
Radon Contractor Proficiency Program (RCPP)	Establish a voluntary proficiency program to evaluate the effectiveness of mitigation contractors.	New.	EPA/OAR/ORP	Lee Salmon (202) 475-9605 (FTS) 475-9605
HQ Coordinator, EPA Radon Research Programs	Headquarters manager and contact for EPA radon research program.	Ongoing.	EPA/ORD/OEETD	Marshall Dick (202) 382-2583 (FTS) 382-2583
Research into Expert System for Radon Reduction	Continue to improve basic modules in the radon reduction expert system.	Ongoing.	EPA/ORD/AEERL	Ron Mosley (919) 541-7865 (FTS) 629-7865
Radon Mitigation in Existing Homes -- Florida	Develop designs for radon mitigation in slab-on-grade houses representative of the housing stock located in Central Florida.	Ongoing.	EPA/ORD/AEERL	David Sanchez (919) 541-2979 (FTS) 629-2979

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Radon Mitigation in Existing Homes -- New Jersey	Extend understanding of fundamental processes of radon entry, transport, and distribution in houses. Provide diagnostic procedures that can be used in specifying appropriate and effective mitigation measures, and provide field evaluation and refinement of interim diagnostic analysis protocols.	Ongoing.	EPA/ORD/AEERL	David Sanchez (919) 541-2979 (FTS) 629-2979
Radon Mitigation in Existing Homes -- Maryland	Pursue low cost mitigation techniques for houses with relatively low to moderate initial radon concentrations.	Ongoing.	EPA/ORD/AEERL	Bruce Henschel (919) 541-4112 (FTS) 629-4112
Radon Mitigation in New Construction -- Maryland/Virginia	Study fifteen homes, and evaluate the effectiveness of radon resistant construction features.	Ongoing.	EPA/ORD/AEERL	Michael Osborne (919) 541-4113 (FTS) 629-4113
Radon Mitigation in Existing Homes -- Tennessee	Provide an in-depth look at techniques which can be used to mitigate houses with crawl spaces, and focus on the most effective crawl space mitigation techniques.	Ongoing.	EPA/ORD/AEERL	Michael Osborne (919) 541-4113 (FTS) 629-4113
Radon Mitigation in New Construction -- New Jersey	Develop and demonstrate radon prevention techniques that can be used by builders of houses.	Ongoing.	EPA/ORD/AEERL	Michael Osborne (919) 541-4113 (FTS) 629-4113
Radon Mitigation in New Construction -- New York	In first phase, demonstrate radon reduction techniques in houses representing 6 structure types. Evaluate systems in houses mitigated previously. Use radon resistant construction techniques during construction of block basement homes in second phase.	First phase completed. Monitoring in progress by Fall of 1989 in houses included in second phase.	EPA/ORD/AEERL	Michael Osborne (919) 541-4113 (FTS) 629-4113

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Radon Mitigation in Existing Homes -- Ohio	Adapt mitigation techniques which have proven effective in other locations to the geologic and construction conditions of OH, and develop and demonstrate approaches (e.g., sealing) for reducing radon levels in basement houses with slightly elevated levels.	Ongoing.	EPA/ORD/AEERL	Bruce Henschel (919) 541-4112 (FTS) 629-4112
Radon Mitigation in Existing Homes -- Tennessee/Alabama (w/TVA)	Mitigate houses in Tennessee and Alabama focusing on crawl space ventilation, decoupling of the crawl space, and house pressure control.	Ongoing.	EPA/ORD/AEERL	Ron Mosley (919) 541-7865 (FTS) 629-7865
"Radon Reduction Methods: A Homeowner's Guide" Brochure	Gather research information from various field projects to incorporate into this brochure.	Ongoing.	EPA/ORD/AEERL	Kelly Leovic (919) 541-7717 (FTS) 629-7717
School Mitigation Demonstration Program	Design and install radon mitigation techniques in schools, and establish a relationship between physical characteristics of a building and the influence on radon levels.	New.	EPA/ORD/AEERL	A.B. Craig (919) 541-2821 (FTS) 629-2821
Study of Sealants and Coatings	Use laboratory data to characterize radon entry routes, study several potential surface sealants and coatings, monitor air flow rates induced through concrete block walls, and test coatings for effectiveness in reducing flow rates.	Ongoing.	EPA/ORD/AEERL	John Ruppertsberger (919) 541-2432 (FTS) 629-2432
Radon Public Information Activities				
Radon Measurement Videotape	Demonstrate different measurement devices and measurement types (e.g., screening and follow-up) according to EPA protocols.	New.	EPA/OAR/ORP	Jed Harrison (202) 475-9605 (FTS) 475-9605

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Regional Radon Training Centers	Develop information and provide training to Federal and State officials, private firms, and the public regarding health risks posed by radon. Demonstrate and teach methods of radon measurement and mitigation, and provide training and administer examinations as part of the Radon Contractor Proficiency Program.	New.	EPA/OAR/ORP	Jed Harrison (202) 475-9605 (FTS) 475-9605
"Reducing Radon in Structures" Training Course	Present the "Reducing Radon in Structures" training course for radon diagnostics and mitigation.	Ongoing.	EPA/OAR/ORP	Jed Harrison (202) 475-9605 (FTS) 475-9605
New York State Radon Risk Communication Study	Examine ways of presenting radon risk information to homeowners who have had their home tested.	Ongoing. Interim report completed: 7/87. Final data collection to be completed: Spring 1989. Analysis is underway.	EPA/OPPE	Reed Johnson (202) 382-4392 (FTS) 382-4392
Region III/Maryland Radon Risk Communication Study	Examine ways of communicating about radon risk so that homeowners will have their homes tested.	Complete reports available: EPA (11/88) and contractor (10/88).	EPA/OPPE	Nancy Zahedi (202) 382-5355 (FTS) 382-5355
Comparison of Reaction to Radon Risk in Three Communities	Examine community reaction to radon risk in communities (Boyertown, PA; Clinton, NJ; and Vernon, NJ) known to have elevated radon levels.	Complete. Final report: 8/88.	EPA/OPPE	Ann Fisher (202) 382-5500 (FTS) 382-5500
Integrated Radon Risk Communication Strategy Study	Examine effectiveness of intensive information campaigns in getting people to test their homes for radon and take mitigating action.	Ongoing. Draft report: Spring 1989.	EPA/OPPE	Alan Carlin (202) 382-5499 (FTS) 382-5499

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Radon Risks, Attitudes Perceptions and Actions	Critique radon risk communications studies.	Ongoing. Draft completed 3/89.	EPA/OPPE	Ann Fisher (202) 382-5500 (FTS) 382-5500
Evaluating Ways of Expressing Risk Information	Comparison of 7 formats for presenting radon risk information (and asbestos risk information).	Ongoing. Progress report: 11/88.	EPA/OPPE	Ann Fisher (202) 382-5500 (FTS) 382-5500
TOXIC CHEMICALS/HOUSEHOLD PRODUCTS ACTIVITIES				
Asbestos Activities				
NESHAPs Regulations (Section 112 of the Clean Air Act)	Protect public health from exposure to asbestos in ambient air.	Enforcement of several regulations including ones prohibiting manufacture of spray- on asbestos insulation and molded pipe insulation and requiring appropriate procedures for demolitions and renovations involving asbestos ongoing. Revisions to regulations under development.	EPA/OAR/OAQPS	Simms Roy (919) 541-5263 (FTS) 629-5263
Asbestos School Loan and Grant Program	Conduct \$45 million program to assist schools with greatest hazard and largest need to abate damaged or deteriorating asbestos.	Funded about 2,200 school abatement projects involving more than \$200 million in awards since 1985. Ongoing.	EPA/OTS/OTS	Gina Bushong (202) 382-3949 (FTS) 382-3949
Worker Protection Rule	Protect health of workers not covered by OSHA regulations.	Ongoing enforcement of rule developed in 1986 and revised in 1987.	EPA/OTS/OTS	Tim Knutson (202) 382-7768 (FTS) 382-7768
Ban and Phase Down Rule	Regulate uses of asbestos to protect public health.	Proposed rule: 1986. Development of final rule in progress. Final rule publication expected: Summer 1989.	EPA/OTS/OTS	John Rigby (202) 382-3862 (FTS) 382-3862
Asbestos-Containing Materials in Schools Rule	Protect public health.	Enforcement of rule promulgated in 1987.	EPA/OTS/OTS	David Kling (202) 382-3949 (FTS) 382-3949

ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Report to Congress on Asbestos in Public and Commercial Buildings	Assess magnitude of problem and make recommendations.	Report available. EPA is addressing report recommendations.	EPA/OTS/OTS	David Kling (202) 382-3949 (FIS) 382-3949
Other Chemicals/Sources				
Formaldehyde/Pressed Wood Products	Assess risk. Identify and implement mitigation measures, if appropriate.	Completed risk assessment: 1987. EPA considering options paper on risk management strategies.	EPA/OTS/OTS	George Semeniuk (202) 382-2134 (FIS) 382-2134
Carpet Workgroup (w/CPSC)	Coordinate interagency assessment of the risk of chemicals emitted from carpets.	Strategy document being developed. Reviewing industry studies on 4-phenolcyclohexene and other sources of information.	EPA/OTS/OTS	Vasant Malshet (202) 475-6712 (FIS) 475-6712
Integrated Solvents Workgroup	Coordinate interagency assessment of key policy issues regarding uses of 4 major solvents. Identify regulatory and non-regulatory options to reduce exposure. Risk management options selection on drycleaning (perchloroethylene) completed: 1987. Follow-up work on identifying potential opportunities for reducing risks to consumers from dry cleaning in process. Metal cleaning work (not an IAQ problem) completed: 1988.	Risk management options selection on aerosols (methylene chloride, trichlorethylene, perchloroethylene) and paint stripping (methylene chloride) scheduled: 1989.	EPA/OTS/OTS	Paul Campanella (202) 382-3946 (FIS) 382-3946
Exposure Assessment Activities				
Consumer Exposure Methodology and Guidelines for Collection of Data Pertaining to Inhalation Exposures in Residential Settings	Present methods for assessing consumer exposure including models to estimate indoor air concentrations. Describe different approaches that may be used to assess exposure to toxic chemicals in indoor air in homes.	Report on methodology available. Draft guidelines on approaches for collecting data related to in-house inhalation exposure under review.	EPA/OTS/OTS	Pat Kennedy (202) 382-3916 (FIS) 382-3916

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Computerized Consumer Exposure Model (CCEM)	Design computer software to generate estimates of inhalation and dermal exposure to persons using consumer products.	Computer code is undergoing testing. Model performance being evaluated.	EPA/OPTS/OTS	Pat Kennedy (202) 382-3916 (FTS) 382-3916
PFT (perfluorocarbon tracer) Database	Improve methods for modeling exposure to contaminants in indoor air in homes.	Extensive data set of air exchange rates and interzonal air flows in homes. Database undergoing review within EPA.	EPA/OPTS/OTS	Pat Kennedy (202) 382-3916 (FTS) 382-3916
Methodology Development for Analysis of Volatile Organic Compounds (VOCs) in Blood	Identify new methods for measuring VOCs taken into human body.	Protocol completed: 1987. No current work.	EPA/OPTS/OTS	Janet Remmers (202) 382-3583 (FTS) 382-3583
Household Products Composition and Usage Surveys	Compile data base on use and compositions of household products and activities. Six solvents identified: methylene chloride, trichloroethylene, carbon tetrachloride, perchloroethylene, and 1,1,2 trichlorotrifluoroethane.	Surveys completed. Reports on exposure while using products during cleaning tasks and during painting and painting-related activities completed: 1987.	EPA/OPTS/OTS	Mary Frankenberry (202) 382-3590 (FTS) 382-3590
Human Adipose Tissue Survey	Identify levels of selected pollutants in human tissues.	Collected data 1970-1988. Reports and journal articles available. Funded through FY 89.	EPA/OPTS/OTS	Janet Remmers (202) 382-3583 (FTS) 382-3583
Toxic Substances/Household Products Public Information Activities				
Toxic Substances Publications	Provide public with information about the uses and hazards of asbestos.	See publications section for list of publications.	EPA/OPTS/OTS	Michael Stahl (202) 382-3949 (FTS) 382-3949
Toxic Substances Hotline	Provide hotline service to answer questions from the public.	Ongoing. (Phone number: 202-554-1404)	EPA/OPTS/OTS	Wanda Woodburn (202) 382-3795 (FTS) 382-3795

U.S. ENVIRONMENTAL PROTECTION AGENCY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Toxic Substances/Household Products Research Activities				
Asbestos in Residences	Determine the amount of asbestos in residences.	Small screening study completed.	EPA/ORD/AREEL	Leslie Sparks (919) 541-2458 (FTS) 629-2458
Household Products Concentrations Levels: IAQ Test House	Assess the indoor air concentrations of chemicals from use of household products in a home under controlled conditions. Compare levels found with chamber studies and indoor air quality modeling.	Ongoing.	EPA/ORD/AEERL	Merrill Jackson (919) 541-2559 (FTS) 541-2559
PESTICIDE ACTIVITIES				
Termiticides				
Chlordane	Protect public from exposure to termiticides containing cyclodienes.	Halted sale of chlordane and heptachlor to pest control operators under 1987 MOU with Velsicol (sole manufacturer) unless certain conditions are met. Manufacturers have withdrawn aldrin and dieldrin from market.	EPA/OPTS/OPP	Michael Firestone (202) 557-0459 (FTS) 557-0459
Other Pesticide Activities				
Non-Occupational Pesticide Exposure Survey	Measure levels of over 20 pesticides in homes.	Data collected from homes in Jacksonville FL and Springfield MA. Final report to be completed: 7/89.	EPA/ORD/EMS	Andrew Bond (919) 541-4329 (FTS) 629-4329
Antimicrobials	Determine exposure to antimicrobials from products used in buildings accessible to general public.	Implementation of antimicrobial exposure strategy developed in 1987 ongoing. Collection and evaluation of toxicology and exposure data ongoing.	EPA/OPTS/OPP	Jim Wilson (703) 557-7470 (FTS) 557-7470

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Inert Ingredients in Pesticides	Identify toxic inert ingredients used in pesticides and require actions by manufacturer to reduce risks to public health, as appropriate.	Implementation of 1987 policy requiring actions on both existing and new inerts ongoing. Deadline for manufacturer application to relabel or reformulate existing inerts: 1987. Program of collecting data on new inerts in progress.	EPA/OPPS/OPP	Lynn Bradley (703) 557-0382 (FTS) 557-0382
Pesticide Public Information Activities				
Public Information	Answer public inquiries on pesticide issues.	Maintain National Pesticide Telecommunications Network hotline. (phone number: 800-858-PEST; in Texas: 806-743-3091). Brochure about NPTN available.	EPA/OPPS/OPP	Frank Davido (703) 557-0576 (FTS) 557-0576
DRINKING WATER ACTIVITIES				
Issue Maximum Contaminant Levels (MCLs)	Regulate amount of VOCs in drinking water.	Final MCLs for 8 VOCs (trichlorethylene, carbon tetrachloride, vinyl chloride, 1,2-Dichloroethane, benzene, 1,1-Dichloroethylene, 1,1,1-Trichloroethane, para-Dichlorobenzene) issued: 1987. Assessment of 83 contaminants listed in Safe Drinking Water Act (some are VOCs) for possible regulation underway.	EPA/OW/ODW	Al Havinga (202) 382-5555 (FTS) 382-5555
Exposure Assessments for VOCs in Drinking Water	Develop model to estimate human exposure from volatilization of drinking water contaminants from showering and other sources (e.g. dishwashers, clotheswashers).	Workgroup established. Draft report tentatively scheduled: 1989.	EPA/OW/ODW	Ken Bailey (202) 382-5535 (FTS) 382-5535

INDOOR AIR ACTIVITIES WITHIN THE U.S. CONSUMER PRODUCT SAFETY COMMISSION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Co-Chair	Coordinate Federal research and policy on IAQ issues.	Ongoing.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554
Indoor Air "Guidance Document" for Public	Provide guidance to consumers on how to assess and decrease indoor air pollution exposure in homes from biological pollutants and asbestos.	Contract let: 3/89. Documents to be available: 1/90.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554 Lori Saltzman (301) 492-6477 (FTS) 492-6477

IAQ RESEARCH ACTIVITIES

Kerosene Heaters	Develop certification test method for kerosene heater emissions of NO ₂ .	Laboratory evaluation underway. Test plan developed. Report for task group review: 9/89.	CPSC	Al Martin (301) 492-6508 (FTS) 492-6508
Biological Pollutants: Kingston/Harriman Field Study	Identify sources and concentrations of biological pollutants present in residential indoor air (coordinated with Harvard 6 City Study).	Data collected from several hundred homes in eastern Tennessee. Paper presented: 1987; report completed: Summer 1988.	CPSC	Pat Rogers (301) 245-1445 (FTS) 245-1445
Monitoring of Biological Pollutants	Obtain monitoring data and analysis of the concentrations of biological pollutants in homes in Portage, WI; Steubenville, OH and Topeka, KS (coordinated with Harvard 6 City Study).	Multi-year investigation initiated: Winter 1987. Phase I report completed: 1988. Phase II report to be completed: Fall 1989.	CPSC	Lori Saltzman (301) 492-6477 (FTS) 492-6477
Home Humidifiers, Vaporizers, and Similiar Appliances	Identify bioaerosols and selected particulate emissions from certain appliances found in homes.	Chamber testing completed. Report on chamber: Spring 1989. Second phase to begin: Summer 1989.	CPSC	Eva Lehman (301) 492-6477 (FTS) 492-6477

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Health Effects of Biological Pollutants	Attempt to correlate data on housing conditions and respiratory symptoms of children with the biological pollutant monitoring data from their homes (coordinated with Harvard 6 City Study).	Analyzing data from Portage, WI, and Steubenville, OH and Topeka, KS. Report to be completed: Summer 1989.	CPSC	Lori Saltzman (301) 492-6477 (FTS) 492-6477
IAQ Macromodel for Assessing IAP from Combustion Appliances (w/DOE and EPA)	Develop and validate a macromodel for predicting indoor air pollutant concentrations.	Phase I draft report to be completed: Summer 1989.	CPSC	Warren Porter (301) 492-6477 (FTS) 492-6477
IAQ Model (w/DOE and EPA)	Verify NIST model and extend user friendliness of IAQ models.	Final report expected: 1989.	CPSC	J.L. Mulligan (301) 492-6508 (FTS) 492-6508
NO ₂ Health Research	Measures urinary excretion of hydroxyproline, as non-invasive indicator of NO ₂ effects on lung matrix of children.	Final report completed: 1988.	CPSC	Lori Saltzman (301) 492-6477 (FTS) 492-6477
Kerosene Heaters	Monitor both pollution exposure and respiratory symptoms of children in homes where kerosene heaters are used; check for correlations.	Sampling performed: Winter 1986. Report completed: 1988.	CPSC	Pat Rogers (202) 245-1445 (FTS) 245-1445
Exposure Assessment of Asbestos in Homes	Assess potential for exposure to airborne asbestos fibers in homes with deteriorating in-place asbestos materials.	Phase I completed in 45 homes: June 1987. Phase II sampling completed, analysis underway. Report: Summer 1989.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554
Wood Stove Emissions	Characterize vapor and particulate polynuclear aromatic pollutants in 150 homes in Tennessee. Evaluate health impact of PAHs from wood stoves.	Sampling completed: 1986. Risk exposure and risk assessment summaries to be completed: Summer 1989.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554

U.S. CONSUMER PRODUCT SAFETY COMMISSION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Air Filtration Appliances	Assess ability of certain types of air filter appliances on market to remove NO ₂ and certain organic gases from indoor air.	Report on the testing of four devices completed: 1988.	CPSC	Bharat Bhooshan (301) 492-6994 (FTS) 492-6994
Air Filters (w/NIST)	Develop standard test method for evaluating the ability of the air filters to remove gaseous contaminants.	Test protocol under development. Contract completion: 9/90.	CPSC	J.L. Mulligan (301) 492-6508 (FTS) 492-6508
Carpets	Evaluate emissions from carpet samples and adhesives. Evaluate consumer complaints.	Development of protocol and pilot testing in progress. Report to be completed: Spring 1990.	CPSC	Susan Womble (301) 492-6554 (FTS) 492-6554
KEY TOXIC CHEMICAL/HOUSEHOLD PRODUCTS ACTIVITIES				
Formaldehyde	Develop voluntary standard for formaldehyde emissions from pressed wood through national consensus organization.	Task group established: Fall 1987. Comments on formaldehyde emissions levels from pressed wood to ASTM: Spring 1989.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554
Asbestos	Reduce consumer exposure to asbestos from products.	Enforcement of labeling policy effective: 12/86. Enforcement of compliance program effective: 1988.	CPSC	Charles Jacobson (301) 492-6400 (FTS) 492-6400
Methylene Chloride	Reduce consumer exposure to methylene chloride through improved labeling of products.	Policy statement on cancer hazard and labeling requirement issued: 11/87.	CPSC	Charles Jacobson (301) 492-6400 (FTS) 492-6400
Methylene Chloride Petition	Address petition to ban methylene chloride in consumer products.	Petition denied.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554
Review of Methylene Chloride Actions	Evaluate impact of commission activities and reformulation on consumer exposure.	To be completed: 1991.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Integrated Chlorinated Solvents Workgroup (w/EPA, OSHA, and FDA)	Participate in an interagency assessment of key policy issues regarding solvent uses. Identify regulatory and non-regulatory options for further analysis.	Risk management options selection on drycleaning (perchloroethylene) completed: 1987. Follow-up work on reducing risks to consumers from drycleaning in process. Metal cleaning work (not an IAQ problem), completed: 1988. Risk management options selection on aerosols (methylene chloride, trichloroethylene, perchloroethylene), and paint stripping (methylene chloride) scheduled: 1989.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554
Kerosene Heaters	Develop voluntary standard to limit emissions of NO ₂ /CO from kerosene heaters.	Test method and predictive model to be presented to U.L. task group: 9/89.	CPSC	Susan Womble (301) 492-6554 (FTS) 492-6554
Unvented Gas Space Heaters	Develop voluntary standard to limit emissions of CO and NO ₂ from unvented gas space heaters.	Workgroup established by ANSI (Z21.11.2) to investigate revision of voluntary standard to include emission rates for CO and NO ₂ .	CPSC	Susan Womble (301) 492-6554 (FTS) 492-6554
Wood Stoves	Identify regulatory and non-regulatory options addressing emissions from wood stoves.	Report: Summer 1989.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554
Paradichlorobenzene	Evaluate hazard to consumers from exposure to paradichlorobenzene in consumer products used indoors and develop remedial options.	Status report: Fall 1989.	CPSC	Sandra Eberle (301) 492-6554 (FTS) 492-6554

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF ENERGY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Co-chair	Coordinate Federal research and policy on IAQ issues.	Ongoing.	DOE/CE/OBCS	John Millhone (202) 586-1510 (FTS) 896-1510
IAQ RESEARCH ACTIVITIES				
Indoor Air Quality Control Techniques	Develop, test, and evaluate energy efficient and cost-effective techniques to maintain IAQ. Conduct comprehensive and critical review of current technologies.	Research ongoing.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
IAQ Problem Assessment	Develop a macromodel to estimate residential indoor pollutant concentration distributions in the U.S.	Final report available for combustion pollutants. Macromodeling of other pollutants is contemplated.	DOE/EH/OEA	David Moses (202) 586-2061 (FTS) 896-2061
Organic Pollutants	Determine relationships between concentrations of airborne organic pollutant compounds in large buildings and energy conservation measures.	Ongoing research. FY 89 work will address temporal and spatial variations of VOCs in a large building.	DOE/CE/OBSC	John Talbott (202) 586-9455 (FTS) 896-9455
Air Infiltration Research	Develop methods to model and measure infiltration and interzonal airflows.	Activities for FY 89 include the development of a infiltration model with the international energy community.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
Passive I/V Using Perfluorocarbon Tracer Gas (PFT) Techniques	Develop and test passive techniques to measure air infiltration and ventilation rates in buildings using PFT.	Additional tracers and improved instrumentation are being developed in FY 89. Ongoing research.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
Library of Congress Study (w/EPA and NIOSH)	Develop and test methods to evaluate the movement of air into and within large buildings and measure indoor pollutants levels. (Part of continuing research on IAQIV large buildings.)	Estimated completion of Library of Congress study report: Fall 1989.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Multi-Family Housing Air Leakage Research	Develop and test air leakage tests and gather air leakage data.	Ongoing.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
IAQIV Measurements	Measure IAQIV in complaint ("sick") and non-complaint buildings.	Ongoing.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
Ventilation Research	Determine combinations causing ventilation loads and dilution of indoor pollutants, and develop models to quantify ventilation parameters.	Ongoing.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
Scale Model Ventilation Flows Studies	Determine significance of the factors determining forced convection airflow patterns and their importance.	Ventilation efficiency scale model testing. Full-scale capability to be developed. FY 89.	DOE/CE/OBCS	John Talbott (202) 586-9455 (FTS) 896-9455
IAQ Macromodel Development	Develop a macromodel to estimate residential indoor combustion pollutant concentration distributions in the U.S.	Final report on model development for CO ₂ , NO ₂ , and RSP to be released: early 1989. Sensitivity analysis to be completed: late 1989. Final report for SO ₂ and combustion generated organics (BaP) due: early 1990.	DOE/EH/OEA	David Moses (202) 586-2061 (FTS) 896-2061
IAQ Macromodel Development	Develop a macromodel to estimate residential indoor radon and organic pollutant concentration distributions in the U.S.	Literature search on factors affecting pollutant concentrations have begun. Preliminary draft expected early 1990.	DOE/EH/OEA	David Moses (202) 586-2061 (FTS) 896-2061
RADON ACTIVITIES				
Technical Measurements Center	Aid DOE and its remedial action contractors in making reliable radon and radon-daughter measurements.	Ongoing.	DOE/ORAW	Tony Brazley (202) 353-5438 (FTS) 233-5438

U.S. DEPARTMENT OF ENERGY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Energy Conservation Impacts of Indoor Radon	Minimize or eliminate the adverse energy impacts associated with radon mitigation activities.	Ongoing.	DOE/LBL	William Fisk (415) 486-6591 (FTS) 451-6591
Hit-Size Effectiveness Function (HSEF) for Chromosome Aberrations	Obtain hit size effectiveness functions for chromosome aberrations in order to evaluate absolute risk in radiation fields of mixed linear energy transfer (e.g., radon exposure).	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Biological Effectiveness of Radon Alpha Particles	Investigate malignant transformation of mammalian cells exposed to single and successive alpha particles.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Lung Cancer Risk from Inhalation of Radon and Other Pollutants	Produce data in rats that will be helpful in assessing the carcinogenic risk of radon inhaled either alone or combined with pollutants commonly found in the home environment.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Chemical and Physical Processes Associated with Distribution and Effects	Study the thermochemistry and kinetics of radon progeny and their secondary reaction products.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Energy Deposition and Radiation Quality of Radon and Radon Daughters (w/DOC)	Create a quantitative microdosimetric description of the interaction of alpha particles from radon and its daughters with the cells at risk in the lung and adjacent areas.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Molecular Mechanisms of Radiation-Induced Mutations in Human Cells	Study the mechanistic basis for gene mutation induced by ionizing-radiation in normal fibroblasts.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Dynamics of Radon Progeny Interactions with Indoor Aerosols	Improve understanding of interactions between radon progeny and other indoor aerosols to improve health risk estimates.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Mechanisms of Mutagenesis by Alpha Particles and X-rays in Human Cells	Define in molecular terms the damage to DNA and the kinds of mutations caused by radon exposure in human cells.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Particle Deposition in Human and Canine Tracheobronchial Casts	Measure deposition patterns and efficiencies of aerosol particles in tracheobronchial airway models, considering respiratory mode and rate and particle morphology.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Chromosome Damage in the 1 Rad Region: Cytogenetic Detection Following Ultra Low Doses and Dose Rates	Provide quantitative data concerning both the dose-response and reparability of cytogenetic damage to human cells caused by ultra low doses of densely ionizing radiation.	Ongoing	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Mechanisms of Radon Injury	Conduct molecular, cellular, and whole-animal studies on radon-induced carcinogenesis.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Radiation Dose and Injury to Critical Cells of the Respiratory Tract from Inhaled Radon	Investigate the types and locations of cells that are irradiated by inhaled radon progeny to improve dose-response estimates.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Studies of the Molecular Damage in Neoplastic Transformation Caused by Alpha Radiation from Radon Progeny	Investigate the mechanisms of cell neoplastic transformation from alpha particles at the physical, chemical, and molecular levels.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

U.S. DEPARTMENT OF ENERGY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Indoor Atmospheric Chemistry: Interactions of Radon With Other Gaseous Pollutants	Provide an understanding of the interactions of radon and its progeny with gaseous indoor pollutants.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Investigation of Radon Entry and Effectiveness of Mitigation Measures	Investigate factors that affect radon entry into selected houses in New Jersey and the Tennessee Valley.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Relationships between Aeroradiometric Measurements of Bi-214 and Soil Radioactivity, Ra, and Rn Content(w/DOI)	Evaluate the accuracy and utility of data obtained from the National Uranium Resource Evaluation Program as it relates to radon.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Comparative Hazards of Radon and Thoron in Indoor Air	Increase understanding of anatomic, biokinetic, and dosimetric factors that affect the hazard of thoron (Rn-220) & radon (Rn-222) chains.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Mutagenicity of Radon and Radon Daughters	Investigate the cytotoxic, mutagenic, and molecular lesions induced by exposure of mammalian cells differing in DNA repair capabilities to low dose rates of radon and radon daughters.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Microdosimetry of Radon Daughters	Develop analytical methods to calculate the microdosimetry of alpha particles and secondary electron interactions with cell nuclei within the tracheobronchial epithelium from inhalation of radon and radon-daughter products.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
An Investigation of the Geology and Geochemistry of Radon in Shear Zones (w/DOI)	Study the geological and chemical factors which affect the presence of radon in shear zones.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Fundamental Studies of Radon Release From Soil Constituents	Examine the origin, mobility, and chemical behavior of radon precursors in soil.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Measurement and Apportionment of Radon Source Terms for Modeling Indoor Environments	Quantitate mechanisms for radon entry into homes, and model the alpha dose to human and animal tracheobronchial trees from inhaled radon daughters.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Atmospheric Chemistry of Po-218	Investigate chemical and physical behavior of the radon decay product, Po-218.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Determination System for Ultrafine Activity Particle Size Distribution and Working Levels	Develop monitoring system to provide information on the size and charge distributions of ultrafine particles.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Dynamic Behavior of Radon Daughters in the Environment	Study the dynamic behavior, including interaction rates, of radon and its daughters.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Radon-Induced Aneuploidy in Progenitor Cells of the Respiratory Tract	Investigate the significance of alterations in DNA content of critical cells in the respiratory tract after radon exposure.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Activation of Oncogenes by Radon Progeny and X-rays	Study the carcinogenic effect of X-rays and alpha particles that simulate radon progeny.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Indoor Radon, Thoron, and Related Aerosols	Study the metrology of indoor radon, thoron, their progeny, and related aerosols.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Aerosol Microphysics of Indoor Radon	Study the physics of formation, interaction, and electrical charging of indoor aerosols associated with radon progeny.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

U.S. DEPARTMENT OF ENERGY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Cell and Mucous Distribution in Airways of the Lung for Modeling Injury Due to Inhaled Radon and Radon Daughters	Provide data necessary for determining target regions of the lung for inhaled radon and radon progeny, and determine the sensitivity of cell types in these region(s).	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Mutations in Shuttle Plasmids	Provide data on the mechanism of mutation induction by ionizing radiations. Investigate the effectiveness of X-rays & alpha particles in mutagenesis.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Initiation-Promotion-Initiation Experiments	Study the interaction of radon and cigarette smoke in causing lung tumors in rats using an initiation-promotion-initiation (IPI) experiment.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Characterization of Airborne Radon Concentrations	Characterize sources and concentrations of indoor radon.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Radon Generation and Transport in Porous Media	Develop unified theory of radon emanation and transport, and implement it in a computer code for application in field studies and research programs.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Radon Transport Modeling in Soils	Construct and apply a comprehensive computer-based model of radon transport within and from soils into the atmosphere and structures.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Basic Studies of Radon and Related Po and Pb Radioisotopes	Provide detailed information about the transport pathways of Rn-222, Pb-214, Bi-214, Po-214, Pb-210, and Po-210.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Dosimetry and Cell Killing	Provide an alpha particle exposure facility and the related dosimetry. Conduct studies of mechanisms of cell killing by alpha particles.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Cellular Morphometry of Human and Dog Lungs	Describe and quantitate the cell populations in epithelial lining and submucosal glands of human and dog lung bronchi.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Generation and Mobility of Radon in Soil	Investigate the generation and transport of radon in soils. Determine the extent of leaching and mobility of uranium, radium, and other uranium progeny in eastern U.S. soil.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Health Effects of Radon Daughter Exposure in Uranium Miners of New Mexico	Describe the exposure-response relationship of radon progeny with lung cancer through the use of a cohort of uranium miners.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Physical Processes of Airborne Radioactivity in Enclosed Environments	Investigate the processes influencing release of radon isotopes from porous media and the physical properties of radon isotopes, their progeny, and ions and aerosols in enclosed environments.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Analysis of DNA Damage and Mutation Induced by Radon Daughter Products	Examine DNA damage and mutations induced in human and Chinese hamster cells exposed to radon daughter products.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Cellular Mechanisms of Radon-Induced Lung Tissue Injury <u>In Vitro</u>	Elucidate cellular mechanisms of lung tissue injury from radon/radon-daughter exposure. Establish <u>in vitro</u> dose-response relationships for responses in major pulmonary cell targets.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

U.S. DEPARTMENT OF ENERGY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Experimental and Theoretical Investigations of Radon Availability, Migration and Entry	Investigate radon availability and migration through soils and entry into houses.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Radon Permeability in Soil	Develop and verify a method of estimating radon permeability in soil.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Radon Dynamics Indoors	Investigate the movement of radon gas and radon progeny within a house and the attachment of progeny to indoor aerosols.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Lung Cancer Risks from Radon Daughters in Domestic Environments	Ascertain whether radon daughters in the domestic environment increase risks of lung cancer for the general population and specifically for females.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Regional Aerosol Deposition in Human Upper Airways	Elucidate factors which influence overall and local deposition of aerosols in the human airways above the trachea.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Gas Transport in Soils and its Relation to Radon Availability (w/DOE)	Provide quantitative information about the range and variability of diffusive and advective-convective transport of radon and its controlling factors.	Ongoing.	DOE and USGS	Allan Tanner (703) 648-6997 (FTS) 648-699
Carcinogenic Effects of Alpha-Particle Radiation on Tracheal Cells	Evaluate the alpha-particle induced carcinogenic effects on respiratory tissue, considering dose-response relationships and oncogene activation.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Investigation of Radon Release and Mobility in the Subsurface Environment	Characterize effects of environmental factors on radon mobility. Analyze effects of engineered structures on mobility. Evaluate mitigation measures.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Radon-Induced DNA Damage and Cell Transformation in Respiratory Cells	Determine the direct effects of radon progeny and other high-LET radiation on respiratory epithelial cells. Investigate the mechanism of radiation carcinogenesis.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Assessment of Indoor Thoron and Progeny	Determine if indoor levels of thoron Rn-220 make a contribution to the environmental radiation dose received by man.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Determination of Rn-222 Flux from Soils Based on Pb-210 and Ra-226 Disequilibrium	Identify a simple parameter that can be used to estimate the potential hazards of radon at any site by measuring the long-term radon flux from soils to the air.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Mechanisms of Radiation Damage to DNA From Radon Daughters	Understand early physical and chemical changes produced in tissue by energetic alpha particles, and elucidate mechanisms of damage to molecules, such as DNA. Compare mechanisms of alpha-particle damage with damage from other types of radiation, and provide the fundamental physical basis for dosimetry and microdosimetry of alpha-particle tracks.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Damage in Mammalian DNA by Radiation Associated with Radon Decay	Determine the types of damage produced in DNA of mammalian cells by alpha particles from radon progeny.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Effects of Vegetation on Radon Transport Processes in Soil	Examine the effects of plants and their functions on radon dynamics in soil.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355

U.S. DEPARTMENT OF ENERGY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Laser Measurements of Pb-210	Correlate Pb-210:Pb-208 ratios in human tissue to radon exposure.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Repair of Alpha Particle-Induced Cytogenetic Damage	Study how mechanisms involved in low dose X-ray-induced repair mechanism affect alpha particle-induced cytogenetic damage, and determine if the lesions induced by low doses of densely ionizing alpha particles can also induce the repair mechanism.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
Deposition of Radon and Radon Progeny in the Respiratory Tract	Determine the deposition sites of inhaled radon progeny in the respiratory tract in humans, and quantify fractional deposition at these sites.	Ongoing.	DOE/ER/OHER	Susan Rose (301) 353-5355 (FTS) 233-5355
K-65 Silo Interim Stabilization and Remediation	Improve the structural stability of the two silos containing K-65 pitchblende residues domes, and achieve alteration of radon emanation.	Ongoing.	DOE/ODP	A.F. Kluk (301) 353-4971 (FTS) 233-4971
New Brunswick Laboratory Site Decommissioning Project	Remove pitchblende contaminated soil from a site in New Brunswick, NJ to permit return of the site to the public domain.	Ongoing.	DOE/ODP	A.F. Kluk (301) 353-4971 (FTS) 233-4971
Grand Junction Project Office Remedial Action Project	Remove uranium contaminated soil, and permit unrestricted use of site from radiobiological standpoint.	Ongoing.	DOE/ODP	A.F. Kluk (301) 353-4971 (FTS) 233-4971

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Co-chair	Coordinate Federal research and policy on indoor air quality issues.	Ongoing.	DHHS/CDC/NIOSH	Philip Bierbaum (513) 841-4321 (FTS) 684-4321
General Assistance Hotline	Answer inquiries on indoor air quality information or any occupational safety and health issue	Ongoing.	DHHS/CDC/NIOSH	(800) 356-4674
Indoor Air Quality Investigations	To provide site investigations or technical advice to solve indoor air quality problems.	Ongoing.	DHHS/CDC/NIOSH	Robert Rinsky (513) 841-4382 (FTS) 684-4382
Analytical Techniques for Indoor Air Contaminants	Research and information on existing methods.	Ongoing.	DHHS/CDC/NIOSH	Peter Eller Alex Teass (513) 841-4321 (FTS) 684-4321
Ventilation Parameters of Indoor Air Quality Investigations	Research.	Ongoing.	DHHS/CDC/NIOSH	Robert Hughes Rick Gorman (513) 841-4266 (FTS) 684-4266
Clinical Parameters of Indoor Air Quality Investigations	Research.	Ongoing.	DHHS/CDC/NIOSH	Mitch Singal (513) 841-4386 (FTS) 684-4386
Psychosocial Parameters of Indoor Air Quality Investigations	Research.	Ongoing.	DHHS/CDC/NIOSH	Steve Sauter (513) 533-8293 (FTS) 684-8293
Physical and Chemical Agent Exposures Related to Indoor Air Quality	Research.	Ongoing.	DHHS/CDC/NIOSH	Rick Gorman (513) 841-4382 (FTS) 684-4382
Biological Agent Exposures Related to Indoor Air Quality	Research.	Ongoing.	DHHS/CDC/NIOSH	Lee Petsonk (304) 291-4223 (FTS) 923-4223
Towards Smoke Free Workplace in Rhode Island	Cooperate with state of RI in study of biochemical markers of tobacco smoke in a work setting.	Ongoing.	DHHS/CDC/CEHIC	Ruth Etzel (404) 488-4682 (FTS) 236-4682

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
New York City Smoking Evaluation Project	Survey attitudes and practices towards smoking and evaluate saliva as biological marker of cigarette smoke among employees in NY City Dept. of Health.	Report in preparation.	DHHS/CDC/CEHIC	Ruth Etzel (404) 488-4682 (FTS) 236-4682
Measurement of Biochemical Indicators of Tobacco Exposure	Develop reliable tests for cotinine and other analytes which reflect use of tobacco smoke to examine effects of tobacco smoke exposure.	Ongoing.	DHHS/CDC/CEHIC	Ruth Etzel (404) 488-4682 (FTS) 236-4682
State Services and Public Information Services on Indoor Air Pollution	Provide information resource for state health departments and members of the public requesting information on the health effects of air pollutants.	Ongoing.	DHHS/CDC/CEHIC	Ruth Etzel (404) 488-4682 (FTS) 236-4682
Urine Elimination of Cotinine in Children	Study elimination of cotinine in young children exposed to controlled amounts of sidestream smoke.	Report in preparation.	DHHS/CDC/CEHIC	Ruth Etzel (404) 488-4682 (FTS) 236-4682
Tobacco Smoke	To prevent death, disease and disability caused by tobacco smoke.	Ongoing.	DHHS/CDC/CCDPPH	John Bagrosky (301) 443-1575 (FTS) 443-1575
Health Statistics	To collect, analyze and disseminate health data from national surveys.	Ongoing.	DHHS/CDC/NCHS	Diane Wagener (301) 436-7032 (FTS) 436-7032
Health Effects from Exposure to Selected Indoor/Outdoor Pollutants (24 Cities Study)	Research.	Ongoing.	DHHS/NIH/NIEHS	James Fouts (919) 541-3506 (FTS) 629-3506
Indoor Radon Pollution and Cigarette Smoke in Etiology of Lung Cancer	Research.	Ongoing.	DHHS/NIH/NIEHS	James Fouts (919) 541-3506 (FTS) 629-3506
Inhalation Toxicity Studies	Research.	Ongoing.	DHHS/NIH/NIEHS	James Fouts (919) 541-3506 (FTS) 629-3506

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Pulmonary Pathobiology Studies	Research.	Ongoing.	DHHS/NIH/NIEHS	James Fouts (919) 541-3506 (FTS) 629-3506
Respiratory Disease and Aerosol Physiology	Research.	Ongoing.	DHHS/NIH/NIEHS	James Fouts (919) 541-3506 (FTS) 629-3506
Health Effects of Passive Exposure to Cigarette Smoke	Research.	Ongoing.	DHHS/NIH/NIEHS	James Fouts (919) 541-3506 (FTS) 629-3506
Allergenicity of Airborne Particulates	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Identification of Basidiospore Allergens in Mold Asthma	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Host Defense Mechanisms in Legionella Pneumonia	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Role of Dust Mite, Cockroach and Cat Allergens in Houses/Asthma	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Immunochemical Assay of Aeroallergens	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Immunotherapy in Allergic Asthmatics	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Immunotherapy in Mite Sensitive Asthmatics	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Legionella Induced Cytokine Formation	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Role of Cockroach Allergens in Atopic Asthma	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Genetic Approaches to Pathogenesis	Research.	Ongoing.	DHHS/NIH/NIAID	Patricia Gallahan (301) 496-6752 (FTS) 496-6752
Epidemiology of Lung Cancer in Non-Smoking Women	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927
Biochemical Validation of Smoke Absorption by Infants	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927
Lung Cancer in Non-Smoking Women	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927
Smoking Cessation Intervention Trial for Pregnant Women	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927
Transplacental Carcinogenicity of NNK	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927
Study of Thyroid Cancer in High Radiation Areas in China	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927
Chronic Disease of Airways: Prospective Evaluation of Airways Reactivity	Research.	Ongoing.	DHHS/NIH/NHLBI	Carol Vriem (301) 496-7208 (FTS) 496-7208
Chronic Disease of the Airways: Pediatric Airway Obstructive Disease	Research.	Ongoing.	DHHS/NIH/NHLBI	Carol Vriem (301) 496-7208 (FTS) 496-7208

SUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Respiratory Disorders of Infants and Children	Research.	Ongoing.	DHHS/NIH/NHLBI	Carol Vriem (301) 496-7208 (FTS) 496-7208
Reproductive Disorders Associated with Occupational Exposure to Nitrous Oxide	Research.	Ongoing.	DHHS/NIH/NIDR	Kenneth Lynn (301) 496-7220 (FTS) 496-7220
Technical Assistance for Federal Agencies	To provide site investigations or technical advice on indoor air quality problems to Federal agencies.	Ongoing.	DHHS/HRSA/DFOBHS	James Felsen (301) 443-2257 (FTS) 443-2257
Contamination Related to Hazardous Wastes	To provide assistance and advice on indoor air contaminants exposures related to hazardous wastes sites.	Ongoing.	DHHS/ASTDR	Frank Mitchell (404) 488-4853 (FTS) 236-4853

ADON ACTIVITIES

Consultations with States and Other Organizations	Respond to inquiries on health aspects of radon exposure.	Ongoing.	DHHS/CDC/CEHIC	Christie Ehemann (404) 488-4682 (FTS) 236-4682
Radioactive Waste Sites Under Superfund Study	Evaluate the radiation dose and the subsequent health risk from industrial and residential sites contaminated with radioactive material. Assess the effectiveness of remedial action at these sites.	Ongoing.	DHHS/CDC/CEHIC	Christie Ehemann (404) 488-4682 (FTS) 236-4682
National Park Service Indoor Radon Program (w/DOI)	Assist in the design and implementation of the National Park Service indoor radon sampling program.	Ongoing.	DHHS/CDC/CEHIC	Dan Hoffman (404) 488-4772 (FTS) 236-4772
Radon Exposure Assessment of Workers Who Work in Caves (w/DOI)	Assess past and current radon exposure of employees who work in caves.	Ongoing.	DHHS/CDC/CEHIC	Christie Ehemann (404) 488-4682 (FTS) 236-4682
Radon Progeny and Lung Cancer	Investigate the relationship between indoor radon exposure and lung cancer.	New.	DHHS/NIH/NIEHS	Gwen Collman (919) 541-4980 (FTS) 629-4980

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Cancer Mortality and Radon-222 Concentration in Groundwater	Compare cancer mortality rates for sites other than the lung in adults living in counties in North Carolina with high and low concentrations of radon in groundwater.	Final year.	DHHS/NIH/NIEHS	Gwen Collman (919) 541-4980 (FTS) 629-4980
Lung Cancer Among Nonsmoking Women with Residential Exposure to Radon Study	Compare estimates of lung cancer risk (per pCi/l) in non-smoking Missouri women to corresponding estimates on miners.	Ongoing.	DHHS/NIH/NCI	Michael Alavanja (301) 496-1611 (FTS) 496-1611
Household Radon Exposure Among Women Admitted to Hospitals Study	Obtain measurements of radon exposure for each subject, estimate lung cancer risk per pCi/l of concentration, and compare with corresponding estimates on miners.	Ongoing.	DHHS/NIH/NCI	Zdenek Hrubec (301) 496-6600 (FTS) 496-6600
Lung Cancer Among Women in China Exposed to Indoor Radon and Other Pollutants Study	Obtain measurements of radon exposure for each subject, and estimate lung cancer risk per pCi/l of concentration.	Ongoing.	DHHS/NIH/NCI	John Boice (301) 496-6600 (FTS) 496-6600
Lung Cancer Among Women in New Jersey Study	Evaluate radon as a potential risk factor by monitoring radon levels in the homes of persons who developed lung cancer and in the homes of others who do not have the disease.	Ongoing.	DHHS/NCI	Zdenek Hrubec (301) 496-6600 (FTS) 496-6600
Epidemiology of Lung Cancer in Chinese Tin Employees	Perform a historical cohort study on tin company workers and an incident case control study of lung cancer among company employees and residents of Gejui City.	Ongoing.	DHHS/NCI	Jay Lubin (301) 496-3356 (FTS) 496-3356
Micronuclei in Bronchial Cells of Uranium Miners	Research.	Ongoing.	DHHS/NIH/NCI	David Howell (301) 496-6927 (FTS) 496-6927

INDOOR AIR ACTIVITIES WITHIN THE BONNEVILLE POWER ADMINISTRATION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	BPA	John Elizalde (503) 230-7520 (FTS) 429-7520
Ventilation Testbed Study	Investigate effects of mechanical ventilation systems on air flows inside residential buildings and between the structure and the outside environment.	In design stage. Estimated completion date: 1992.	BPA	Phil Thor (503) 230-3098 (FTS) 429-3098
Northwest Residential Infiltration Study (NORIS)	Determine infiltration rates in homes constructed according to current building practices and in homes built according to Model Conservation Standards (MCS). Investigate relationship between fan pressurization and perfluorocarbon tracer (PFT) measurements.	Project completed. Draft report available.	BPA	Phil Thor (503) 230-3007 (FTS) 429-3307
Multifamily Air Exchange Study	Measure the amount of air exchange in multifamily housing which meets the Model Conservation Standards (MCS) and develop a method of predicting the amount of air exchange based on a number of factors.	Phase I completed (includes collection of data on 140 current practice homes). Data analysis underway. Phase II (includes data collection on MCS homes) began: 2/89. Sampling design, recruitment plan and first year test protocols available.	BPA	Phil Thor (503) 230-3098 (FTS) 429-3098

BONNEVILLE POWER ADMINISTRATION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Dissemination of Technical Reports	Increase understanding of indoor air quality-related topics.	Distribute completed technical reports: Regional Weatherization Study New Energy Efficient Home IAQ Study Commercial Building IAQ Study Radon and Remedial Action in Spokane River Valley Homes Carbon Dioxide Based Ventilation Control System Demonstration IAQ-Exhaust Fan Mitigation IAQ-Exhaust Air Heat Pump Project Effects of Airtight Wood Heaters on Residential IAQ Radon Monitoring in Energy Efficient Homes Formaldehyde Monitoring in Energy Efficient Homes	BPA	Chantina Johnson (503) 230-5488 (FTS) 429-5488
RADON ACTIVITIES				
Residential Weatherization Program	Address the environmental impacts of regional conservation programs that offer incentives to home-owners who install energy conservation measures.	Ongoing.	BPA	Charles Eastwood (503) 230-4992 (FTS) 429-4992
Radon Mitigation Demonstration	Provide training for Pacific Northwest contractors in proven radon mitigation techniques.	New.	BPA	Charles Eastwood (503) 230-4992 (FTS) 429-4992

INDOOR AIR ACTIVITIES WITHIN THE GENERAL SERVICES ADMINISTRATION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	GSA	James Hensley (202) 566-1464 (FTS) 566-1464
Indoor Air Quality Policy and Guidelines for GSA-Owned and Controlled Buildings	Maintaining acceptable IAQ throughout GSA space.	Implemented: Fall 1988.	GSA	Wing To Chan (202) 566-1464 (FTS) 566-1464
Thermal and Environmental Evaluation of Advanced Technology Office Buildings	Validate the use of diagnostic techniques for evaluating building design and performance features including IAQ.	Ongoing.	GSA	Dave Eakin (202) 566-1464 (FTS) 566-1464
Development of Protocol to Determine Friability of Sprayed-on-Asbestos-Containing Surfacing Materials (w/National Bureau of Standards)	Develop mechanical technique or device which will provide a consistent measure of the friable nature of existing sprayed-on-asbestos-fireproofing.	Completed.	GSA	Wing To Chan (202) 566-1464 (FTS) 566-1464

RADON ACTIVITIES

Radon in Public Buildings Study	Provide information to develop guidelines for acceptable radon levels in public buildings, and provide data on potential health problems associated with radon exposure in public buildings.	New.	GSA/NCR	Marian Nuckolls (202) 453-5236 (FTS) 453-5236
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INDOOR AIR ACTIVITIES WITHIN THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	NASA	Bill Wolverton (601) 688-3155 (FTS) 494-3155
Study on House Plants and Air Quality	Evaluate capacity of houseplants to remove formaldehyde, carbon monoxide, and benzene from the air.	Ongoing.	NASA/National Space Technology Lab	Bill Wolverton (601) 688-3155 (FTS) 494-3155
Offgassing of Materials for Spacecraft Applications	Determine acceptability of materials for spacecraft use.	Maintain data in computer file called MAPTIS. Publish handbook annually, <u>Materials Selection List for Space Hardware Systems</u> . Research ongoing.	NASA/Marshall Space Craft Flight Center	C.F. Key (205) 544-2487 (FTS) 544-2487

INDOOR AIR ACTIVITIES WITHIN THE TENNESSEE VALLEY AUTHORITY

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	TVA	Robert Rainey (205) 382-2314 (No FTS)
Chattanooga Indoor VOC and NO ₂ Study	Examine short term concentrations of VOCs and NO ₂ in 7 residences and 3 public buildings.	Study complete. Report available.	TVA	William Parkhurst (205) 386-2793 (No FTS)
NO ₂ Concentrations in 5 Chattanooga, TN Public Housing Developments	Examine relationships between NO ₂ and various appliance types and weatherization measures in 200 homes.	Study complete. Report available.	TVA	William Parkhurst (205) 386-2793 (No FTS)
NO ₂ Intervention Study in Public Housing Developments	Examine influence of gas appliance inspection and maintenance program on NO ₂ concentrations in 30 public housing residences.	Study complete. Report available.	TVA	William Parkhurst (205) 386-2793 (No FTS)
Public Outreach	Develop and distribute IAQ materials to public, provide toll free Citizen Action Line, provide speakers for meetings.	Ongoing.	TVA	Robert Rainey (205) 382-2314 (No FTS) Barry Barnard (205) 386-2792 (No FTS)
Industrial Hygiene Studies	Monitor and assess IAQ in buildings and structures occupied by TVA.	TVA Occupational Hygiene Department leads project. Work in progress.	TVA	Robert Rainey (205) 382-2314 (No FTS) John McFeters (205) 386-2312 (No FTS)
RADON ACTIVITIES				
Implementation of Indoor Radon Abatement Act.	Conduct Radon measurements within TVA buildings.	In progress.	TVA	Ron Maxwell (205) 386-2767 (No FTS)

**INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF COMMERCE
(NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY)**

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	DOC/NIST	James Hill (301) 975-5851 (FTS) 879-5851
Standards for Volatile Organic Compounds	Develop accurate gas standards for multicomponent VOC's in the low ppb range.	Numerous VOC standards have been developed for EPA and state programs. An SRM containing 18 VOC's is currently under development at the 5 ppb level to be available 6/89.	DOC/NIST	Walt Zielinski (301) 975-3918 (FTS) 879-3918
Standards for Pollutant Gases	Develop accurate, stable gas standards for hydrocarbon and oxides of nitrogen and sulfur in the low ppm range.	Such standards have been developed for CO, NO, SO ₂ , and propane. The need for specific standards for indoor air measurements remains to be defined.	DOC/NIST	Walt Zielinski (301) 975-3918 (FTS) 879-3918
Indoor Air Pollution Concentration Model	Develop a generalized simulation program that accounts for building infiltration and pollution generation, dilution, reaction, removal, and exfiltration.	Phase III report: 8/88. Source and sink models being developed. Special version of program for professionals being developed.	DOC/NIST	Dick Grot (301) 975-6430 (FTS) 879-6430
Infiltration and Ventilation in Large Buildings	Develop test methods for measuring air movement into and within large commercial buildings and efficiency of ventilation systems. Examine the relationship of contaminants, ventilation systems operation, and occupant satisfaction.	Test methods development completed. Under application to three office buildings and an office-laboratory complex.	DOC/NIST	Andy Persily (301) 975-6418 (FTS) 879-6418
Efficiency of Gaseous Contaminant Removal Devices	Develop a test method for determining the efficiency and capacity of gaseous pollutant removal equipment in HVAC systems.	Test apparatus built and checked out. Report issued. Theoretical basis for filter test being developed.	DOC/NIST	Bal Mahajan (301) 975-5856 (FTS) 879-5856

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
RADON ACTIVITIES				
Site Classification Scheme (w/HUD)	Develop a site test method for radon risk assessment.	Project initiated: 12/88. Phase I Report completed: 5/89.	DOC/NIST and HUD	Felix Yokel (301) 975-6065 (FTS) 879-6065
NIST Measurement Standards Program	Upgrade the radon measurement system. Provide transfer calibration standards services.	Ongoing.	DOC/NIST	Ron Coll (301) 975-5527 (FTS) 975-5527
Energy Deposition and Radiation Quality of Radon and Radon Daughters(w/DOE)	Create a quantitative micro-dosimetric description of the interaction of alpha particles from radon and its daughters with the cells at risk in the lung and adjacent areas.	New.	DOC/NIST and DOE	Susan Rose (301) 353-5355 (FTS) 353-5355

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF DEFENSE

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	DOD/DON	Daniel Reinhard (202) 692-3287 (No FTS)
SBS Complaint Investigations	Provide guidance to field support teams on conducting indoor air quality investigations at AF facilities.	Guidance document completed: 4/87. 15 field investigations completed to date.	DOD/USAF/OEH	Capt. Frank Liebhaber (512) 536-3214 (No FTS) Lt. Col. Jefferson Prather (202) 767-1739 (No FTS)
Data Repository of IAQ Investigations	To assess magnitude of IAQ problems at AF facilities.	Biannual reports will be issued. First report due: Fall 1989.	DOD/USAF and Office of the Surgeon General	Lt. Col. Jefferson Prather (202) 767-1739 (No FTS)
RADON ACTIVITIES				
U.S. Army Radon Reduction Program	Assess radon levels in all Army - controlled buildings, and abate where the levels are above 4 pCi/l.	All testing to be completed: 9/91 and all abatement to be completed: 9/97.	DOD/DOA	Emery Lazar (202) 693-5032 (No FTS)
Navy Radon Assessment and Mitigation Program	Screen Navy and Marine Corps installations for structures with elevated radon levels and reduce elevated levels, where found, to below 4 pCi/l.	New. Initial screening phase began: 1/89.	DOD/DON	Karl Mendenhall (202) 692-5604/5608 (No FTS)
U.S. Air Force Radon Assessment and Mitigation Program	Identify, evaluate and mitigate potential sources of radon which could pose unacceptable risks to the Air Force populace worldwide.	Ongoing. Initial screening phase was completed: 3/88. Detailed assessment is ongoing with some mitigation underway.	DOD/USAF	Col. David Case (202) 767-1739 (No FTS)

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	HUD	James Stimpson (202) 755-6230 (FTS) 755-6230
LEAD BASED PAINT ACTIVITIES				
Memorandum of Understanding between HUD and EPA	Define the responsibilities of HUD and EPA on research and demonstration activities responding to new legislative requirements on lead-based paint.	MOU executed: 4/89.	HUD and EPA	Ellis Goldman (202) 755-5528 (FTS) 755-5528
Lead-Based Paint Abatement Demonstration	Demonstrate and determine the cost-effectiveness of various abatement technologies in HUD-owned and Public Housing. Submit report to Congress by December 1989.	Demonstration contractor has been selected. Some 200 HUD-owned units in five cities have been identified as possible demonstration sites; public housing units are being identified.	HUD	Ellis Goldman (202) 755-5528 (FTS) 755-5528
Lead-Based Paint Identification Techniques (w/DOC/NIST)	Identify effective methods for identifying and quantifying lead-based paint. Include report on these identification methods in the abatement demonstration report to Congress.	Under an Interagency Agreement, NIST is carrying out a research program. Report to be completed: 9/89.	HUD	Nelson Carbonell (202) 755-6450 (FTS) 755-6450
National Hazard Estimate and Comprehensive Plan	Develop an estimate of the extent of the national hazard from lead-based paint. Prepare a comprehensive and workable plan for the prompt and cost-effective identification and abatement of lead-based paint in all privately owned housing in the United States. Submit the abatement plan to Congress by September 1990.	Contractor selected; award expected: 9/89.	HUD	Stevenson Weitz (202) 755-4370 (FTS) 755-4370

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
RADON ACTIVITIES				
Site Classification Scheme (w/DOC/NIST)	Develop a site test method for radon risk assessment.	Project completed: 5/89.	HUD and DOC/NIST	Conrad Arnolts (202) 755-5528 (FTS) 755-5528
Development of Radon Policy for HUD Programs	Determination of how HUD/FHA and Public and Indian Housing are to handle radon issues.	Policy development in progress; policy requirement called for in McKinney Amend. Act.	HUD	Richard Broun (202) 755-7894 (FTS) 755-7894
Development of Memorandum of Understanding with EPA	Provide mechanism for coordinating radon activities.	MOU between HUD and EPA executed: 7/89.	HUD and EPA	James Miller (202) 755-7225 (FTS) 755-7225
Assistance in Development of a National Policy Regarding Radon Exposure	Provide scientific and technical analysis of radiation research, including radon gas, and develop a basis for Federal consensus on environmental radon exposure.	New.	HUD	James Miller (202) 755-7025 (FTS) 755-7025
OTHER ACTIVITIES				
Moisture Control in Manufactured Housing	Identify the effects of indoor humidity on walls and evaluate ventilation devices for humidity control.	Testing on walls and testing of ventilation devices in six manufactured houses in Madison, WI to be completed: Spring 1990. Report to be completed: Fall 1990.	HUD and USDA	William Freeborne (202) 755-5528 (FTS) 755-5528

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF THE INTERIOR

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
RADON ACTIVITIES				
Indoor Radon Program (w/DHHS)	Measure radon in all residences and office buildings owned by the National Park Service, and mitigate buildings to "safe" levels.	Ongoing.	DOI/NPS	Alan Kingsbury (202) 343-7090 (FTS) 343-7090
Radon Exposure Assessment of Workers Who Work in Caves (w/DHHS)	Assess past and current radon exposure of employees who work in caves.	Ongoing.	DOI/NPS	Christie Ehemann (404) 488-4682 (FTS) 236-4682
Mobility, Transport and Fate of Naturally Occurring Radionuclides in Ground Water	Determine factors controlling radionuclide transport and fate along groundwater flow paths, and define mechanisms that release radionuclides to ground water and characterize spatial variation of radionuclide concentrations.	Ongoing.	DOI/USGS	Otto Zepecza (609) 771-3900 (No FTS)
Natural Radioactivity in Ground Water of the Kirkwood-Cohansey Aquifer System	Define occurrence and distribution of radionuclides in ground water, identify relation between radionuclide activities and other chemical constituents, define source of radioactivity in ground water, and evaluate changes in ground water chemistry and radionuclide content along flow paths.	New.	DOI/USGS	Otto Zepecza (609) 771-3900 (No FTS)
Investigation of the Geology and Geochemistry of Radon in Shear Zones (w/DOE)	Investigate radon in major shear zones along the east coast of the U.S.	New.	DOI/USGS	Linda Gundersen (703) 648-6427 (FTS) 959-6427

U.S. DEPARTMENT OF THE INTERIOR

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
Relationships Between Aeroradiometric Measurements of Bi-214 and Soil Radioactivity, Ra, and Rn Content (w/DOE)	Correlate between aeroradiometric surveys using a radon decay product, the radium concentration in soil, and the radon concentration in soil gas.	Ongoing.	DOI/USGS	Joseph Duval (703) 648-6391 (FTS) 959-6391
National Equivalent Uranium Map Production (w/EPA)	Reprocess U.S. DOE National Uranium Resource Evaluation (NURE) aerial radiometric data.	Ongoing.	DOI/USGS and EPA	Tom Peake (202) 475-9605 (FTS) 475-9605
Technical Assistance for State Radon Surveys (w/EPA)	Provide geological assessments of statewide radon potential.	Ongoing.	DOI/USGS and EPA	Tom Peake (202) 475-9605 (FTS) 475-9605

**INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF LABOR
(OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)**

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	DOL/OSHA	Ed Baier (202) 523-7031 (FTS) 523-7031
Occupational Standards for Indoor Air Pollutants	Regulate levels of air pollutants in the industrial workplace.	Final rule for ethylene oxide: 4/6/88. Final rule stage for ethylene dibromide. Proposed rule stage for asbestos, 1,3 Butadiene, cadmium, glyco ethers, methylene chloride, and methylenedianiline.	DOL/OSHA	Charles Adkins (202) 523-7075 (FTS) 523-7075
Toxic Substances in Laboratories	Regulate levels of toxic substances in the laboratory.	Final rule stage.	DOL/OSHA	Charles Adkins (202) 523-7075 (FTS) 523-7075
Permissible Exposure Limit Update	Update occupational standards by adopting ACGIH Threshold Limit Values (TLVs) and NIOSH Recommended Exposure Limits (RELs).	Final rule: 1/89; effective 3/89	DOL/OSHA	Charles Adkins (202) 523-7075 (FTS) 523-7075
Field Health Compliance Inspections	Protect health of American workers by inspecting exposure to hundreds of air contaminants.	Ongoing.	DOL/OSHA	Regional Administrators and Area Directors (throughout U.S.)
IAQ Chapter of OSHA Technical Manual	Investigation of IAQ cases by OSHA compliance officers.	Projected completion date: 9/89.	DOL/OSHA	Long Loo (202) 523-7056 (FTS) 523-7056
IAQ Training Course	Assist Federal and State compliance officials in evaluating indoor air quality in non-industrial workplaces.	Ongoing. (May be offered twice a year.)	DOL/OSHA	Zigmas Sadauskas (312) 297-4810 (FTS) 353-2500

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF STATE

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	DOS/Safety Office	Stephen Urman (202) 647-4302 (FTS) 647-4302
State Indoor Air Quality Committee (SIAQ)	Coordinate activities of offices whose activities or operations affect the indoor air quality of DOS facilities.	Ongoing.	DOS/Safety Office	Stephen Urman Ken Doolan (202) 647-4302 (FTS) 647-4302
RADON ACTIVITIES				
Radon Assessment Advisory Group	Select a course of action for radon control program for overseas buildings and dwellings.	Ongoing. Selection of action to be completed by the end of FY 1988. Conduct requirements study to define technical approach and cost of radon study. To be completed: end of FY89.	DOS/Safety Office	Stephen Urman (202) 647-4302 (FTS) 647-4302

INDOOR AIR ACTIVITIES WITHIN THE U.S. DEPARTMENT OF TRANSPORTATION

ISSUE/MAJOR ACTIVITY	PURPOSE	STATUS	LEAD AGENCY/ OFFICE	CONTACT
CIAQ Member	Coordinate Federal research and policy on IAQ issues.	Ongoing.	DOT/OST/ Environmental Division	Eugene Lehr (202) 366-4860 (FTS) 366-4860
Airliner Cabin Air Quality	Examine air quality in cabins of commercial airlines.	Advisory committee formed to advise on protocol and contract requirements. Contract awarded and study initiated.	DOT/OST/ Aviation Regulations and Coordination Division	Arnold Konheim (202) 366-4849 (FTS) 366-4849

INDOOR AIR QUALITY PUBLICATIONS AVAILABLE FROM FEDERAL AGENCIES

Publications listed below were issued as a public information or technical assistance activity. They are intended to provide guidance to either the general public or some specific segment of the public. Activities that result in the publication of technical reports are listed under the sponsoring Federal agency earlier in this document.

TITLE	DATE	LEAD AGENCY/ OFFICE	CONTACT
U.S. ENVIRONMENTAL PROTECTION AGENCY			
The address of the EPA Public Information Center (PIC) is listed below. Those publications for which PIC is listed as the contact should be ordered from the EPA Publication Information Center. Also, many of the publications listed below are available from the EPA Regional Offices.			
EPA Public Information Center (PIC) 401 M Street S.W. (PM-221B) Washington, D.C. 20460 (202) 382-2080 (FIS) 382-2080			
<u>The Inside Story: A Guide to Indoor Air Quality</u>	1988	EPA/OAR/OAIAP (w/CPSC)	PIC
<u>Directory of State Indoor Air Acts</u>	1988	EPA/OAR/OAIAP	
Fact Sheets: #1: EPA and Indoor Air Quality	1987	EPA/OAR/OAIAP	
#2: EPA Indoor Air Quality Implementation Plan	1987		
#3: Ventilation and Air Quality in Offices	1988		
#4: Sick Buildings	1988		
<u>Current Federal Indoor Air Activities</u>	1989	EPA/OAR/OAIAP	
<u>Citizen's Guide to Radon</u>	1986	EPA/OAR/ORP	
<u>Reduction Methods: A Homeowner's Guide</u>	1987	EPA/OAR/ORP	
<u>Interim Guidelines for Radon in New Home Construction</u>	1987	EPA/OAR/ORP	
<u>Radon Removal from Household Water</u>	1987	EPA/ORD/EETD	

TITLE	DATE	LEAD AGENCY/ OFFICE	CONTACT
<u>Radon Measurement Proficiency</u>	1987	EPA/OAR/ORP	
<u>State Radon Program Summary</u>	1987	EPA/OAR/ORP	
<u>Radon Reference Manual</u>	1987	EPA/OAR/ORP	
<u>Asbestos in the Home: A Homeowner's Guide</u>	1988	EPA Region 10	Mary Frances Briggs (202)442-1255 (FTS)399-1255
<u>Asbestos in Homes</u>	1987	EPA and CPSC	Toxics Hotline (202)554-1404 (FTS)554-1404
<u>Asbestos in Buildings: Guidance for Service and Maintenance Personnel (in English and Spanish)</u>	1985	EPA/OTS/OTS	
<u>Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials</u>	1984	EPA/OTS/OTS	
<u>Measuring Airborne Asbestos Following An Abatement Action</u>	1985	EPA/OTS/OTS	
<u>Guidance for Controlling Asbestos-Containing Materials in Buildings</u>	1985	EPA/OTS/OTS	
<u>Guidance for Preventing Asbestos Disease Among Mechanics</u>	1986	EPA/OTS/OTS	
<u>Airborne Asbestos Health Assessment Update</u>	1986	EPA/OTS/OTS	
<u>A Guide to Respiratory Protection for the Asbestos Abatement Industry</u>	1986	EPA and NIOSH	
<u>Assessing Asbestos Exposure in Public Buildings</u>	1988	EPA/OTS/OTS	
<u>Termiticides Consumer Information</u>	1988	EPA/OTS/OPP	Jackie Bishop (703)557-4474 (FTS)557-4474

PUBLICATIONS AVAILABLE FROM FEDERAL AGENCIES

PUBLICATIONS AVAILABLE FROM FEDERAL AGENCIES

TITLE	DATE	LEAD AGENCY/ OFFICE	CONTACT
<u>A Consumer Guide to Safer Pesticide Use</u>	1987	EPA/OPTS/OPP	
<u>Citizen's Guide to Pesticides</u>	1987	EPA/OPTS/OPP	
<u>Chlordane Consumer Information</u>	1987	EPA/OPTS/OPP	
U.S. CONSUMER PRODUCT SAFETY COMMISSION			
<u>Asbestos in Homes</u>	1987	CPSC and EPA	CPSC Hotline (800) 638-CPSC
<u>Safety Alert on Humidifiers</u>	1988	CPSC	
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES			
<u>Guidance for Indoor Air Quality Investigations</u>	1987	DHHS/CDC/NIOSH	Rick Gorman (513) 841-4382 (FTS) 684-4382
<u>The Surgeon General's Report on the Health Consequences of Involuntary Smoking</u>	1986	DHHS/CDC/CCDPHP	Technical Information Center, Office of Smoking and Health (301) 443-1690
<u>Reducing the Health Consequences of Smoking: 25 Years of Progress</u>	1989	DHHS/CDC/CCDPHP	
TENNESSEE VALLEY AUTHORITY			
<u>Indoor Air Quality: How It Affects You</u>	1988	TVA	Robert Rainey (205) 382-2314 (No FTS)