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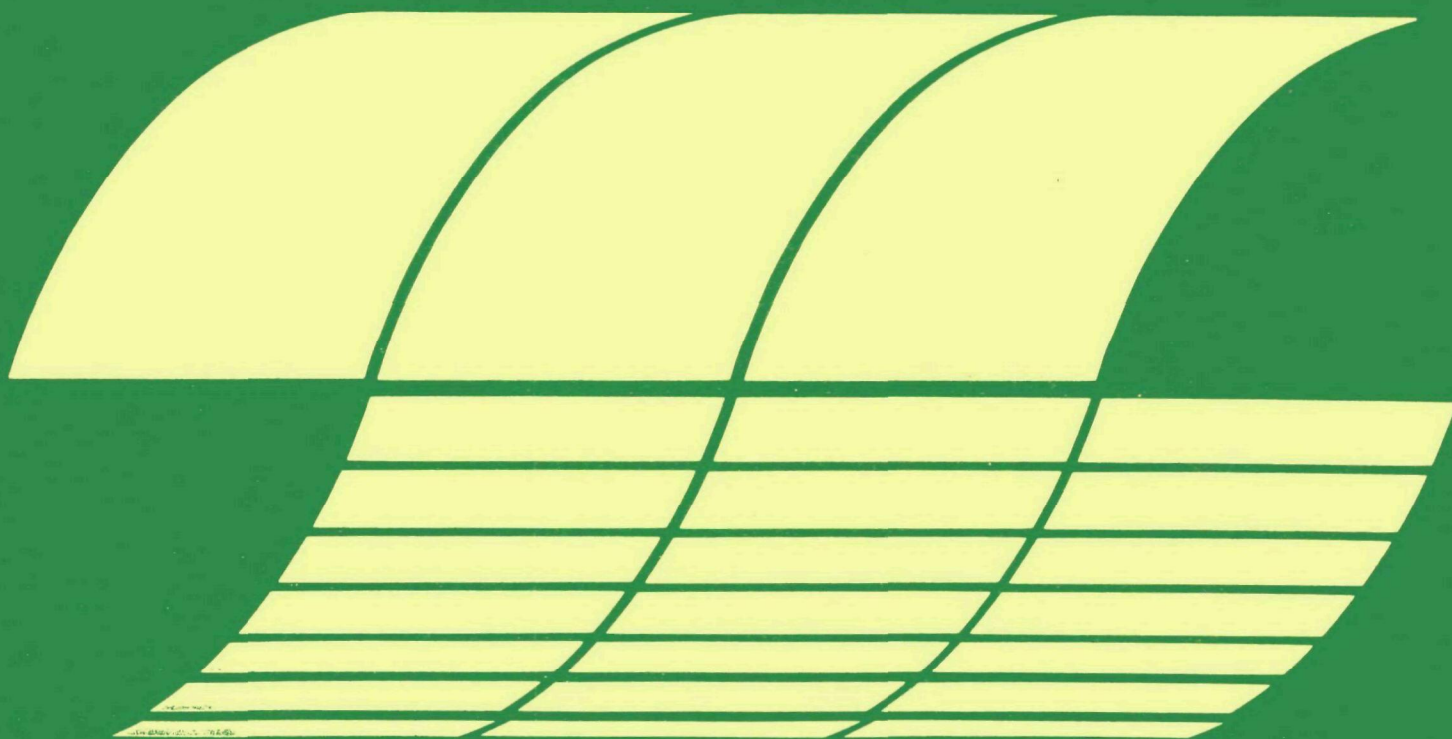
Office of
Research and
Development

Energy,
Minerals and
Industry

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October 1976

Who's Who II
in the
**Interagency
Energy/Environment
R&D Program**



THE ENERGY/ENVIRONMENT R&D DECISION SERIES

This volume is a part of the Energy/Environment R&D Decision Series. The series presents the key issues and findings of the 17-agency Federal Interagency Energy/Environment Research and Development Program in a format conducive to efficient information transfer. The volumes are of three types: **Summaries**—short synopses of larger research reports; **Issue Papers**—concise discussions of major energy/environment technical issues; and **Executive Reports**—in-depth discussions of an entire program area.

The Interagency Program was inaugurated in fiscal year 1975. Planned and coordinated by the Environmental Protection Agency (EPA), research projects supported by the program range from the analysis of health and environmental effects of energy systems to the development of environmental control technologies. The works in this series will reflect the full range of program concerns.

The Decision Series is produced for both energy/environment decision-makers and the interested public. If you have any suggestions, comments, questions or topics you would like to see discussed, please write to Series Editor Richard Laska, Office of Energy, Minerals and Industry, RD-681, U.S. EPA, Washington, D.C. 20460 or call (202) 755-4857. Extra copies are available on request.

Who's Who II

in the

Interagency Energy/Environment R&D Program

United States Environmental Protection Agency
Office of Research and Development
Office of Energy, Minerals and Industry

October 1976

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INTRODUCTION

Research is the seeking of knowledge about something which is, at least in part, unknown. This factor of the unknown has plagued efforts to establish national energy policy. Many of the most problematic of these energy-related uncertainties involve environmental issues.

Such uncertainties can only be removed by, first, performing adequate research; and second, communicating the results of that research to energy/environment policy makers, research managers, and the interested public. One of the best ways of communicating research information is by establishing personal links among the individuals involved. In order to provide the tool to establish these links, EPA is publishing its second edition of the interagency directory, *Who's Who II in the Interagency Energy/Environment R&D Program*.

This listing of individuals and agencies involved with each R&D project in the Interagency Program is intended to promote and facilitate communications, not only among the researchers and program managers, but with the interested public as well. It is our hope that the dialogue stimulated by this and other Interagency Program documents will contribute to effective information exchange within the organizations involved in energy-related environmental research, and will shed light on some of the salient environmental issues involved in energy research and development decision making.

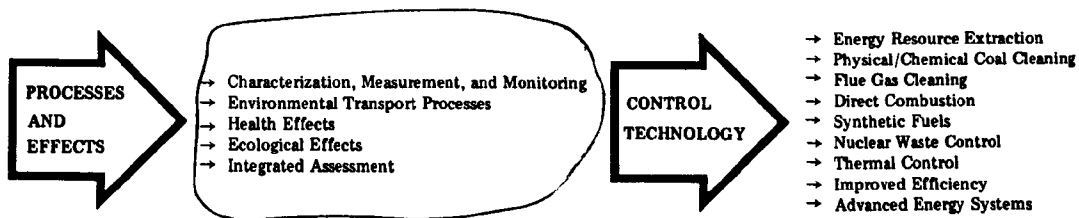
Inaugurated in fiscal year 1975, the Federal Interagency Energy/Environment Research and Development Program brings together the coordinated efforts of 17 Federal agencies and departments. The goal of the Interagency Program is to assure that both environmental data and control technology are available to support the rapid development of domestic energy resources, especially coal, in an environmentally acceptable manner. The program is planned and coordinated by the Office of Energy, Minerals and Industry within EPA's Office of Research and Development.



Stephen J. Gage
Deputy Assistant Administrator
Office of Energy, Minerals and Industry
U.S. Environmental Protection Agency

HOW TO USE WHO'S WHO II

This directory has been prepared for use as a means of access to information on specific projects currently underway within the Interagency Program. The directory generally follows the same category and project sequence as the *Federal Interagency Energy/Environment Research and Development Program—Status Report III*. The 14 major categories are shown here.



Under each category, all the projects which are discussed in *Status Report III* are listed by a descriptive title. The list includes projects conducted by EPA as well as those conducted by other agencies.

After each project title three names appear:

- Project Contact — This is the individual responsible for implementing the project and/or having cognizance of its technical scope and status.
- EPA Coordinator — This is the individual in EPA's Office of Energy, Minerals, and Industry who is responsible for coordination of project activity in this and related areas.
- Agency Coordinator — This is the policy-level individual within the performing agency who has overall supervisory responsibility for the projects.

The following Federal agency abbreviations are used throughout this directory:

- EPA — Environmental Protection Agency
- USDA — U.S. Department of Agriculture
- HUD — Department of Housing and Urban Development
- USGS — U.S. Geological Survey
- USFWS — U.S. Fish and Wildlife Service
- USBM — U.S. Bureau of Mines
- ERDA — Energy Research and Development Administration
- NASA — National Aeronautics and Space Administration
- NBS — National Bureau of Standards
- NIEHS — National Institute of Environmental Health Sciences
- NOISH — National Institute of Occupational Safety and Health
- NOAA — National Oceanic and Atmospheric Administration
- TVA — Tennessee Valley Authority

Following the listing of all the projects, there is a section which alphabetically lists all of the Project Contacts, EPA Coordinators, and Agency Coordinators together with their mailing addresses and telephone numbers. These addresses and numbers have been updated within four weeks of the publishing of this report.

WHO'S WHO IN THE INTERAGENCY ENERGY/ENVIRONMENT R&D PROGRAM

PROJECT	PROJECT CONTACT	EPA COORDINATOR	AGENCY COORDINATOR
CHARACTERIZATION MEASUREMENT AND MONITORING			
• Western Energy/Environment Monitoring Study			
– Western Regional Air Monitoring and Data Analysis	D. McNelis	G. D'Alessio	S. Gage (EPA)
– Northern Great Plains Energy/Air Quality Baseline Information	T. Thoern		↓
– Western Air Monitoring Quality Assurance Support	S. Bromberg		J. Townsend, Jr. (NOAA)
– Atmosphere and Meteorological Studies of Pollutants from Energy Production in the Western United States	R. Puschel		↓
– Meteorological Interpretation and Prediction of Air Quality in the Western United States Related to Energy Activities	L. Machta		S. Gage (EPA)
– Western Region Water Monitoring and Data Analysis	D. McNelis		G. Davis (USGS)
– Energy Related Surface Water Monitoring/Western Region	H. Hudson		↓
– Energy Related Groundwater Monitoring/Western Region Study	↓		S. Gage (EPA)
– Energy Related Surface and Groundwater Monitoring Studies/Western Region	D. Ballinger		↓
– Western Water Monitoring Quality Assurance Support	D. Gilmore		J. Morrison (NASA)
– Western Groundwater Monitoring and Techniques Development	H. Melfi		S. Gage (EPA)
– Western Overhead Surface Monitoring and Techniques Development	E. Tilton		↓
– Technical Support for Western Energy Related Environmental Assessment/Overhead Monitoring Method Development	E. Bretthauer		G. Davis (USGS)
• Energy Related Radiological Pollutant Monitoring and Techniques Development	A. Jarvis		↓
• Energy Related Radiological Pollutant Monitoring Quality Assurance	H. Melfi		J. Liverman (ERDA)
• Remote Monitoring for Energy Related Pollutants and Effects Techniques Development	D. Ballinger		↓
• Energy Related Water Pollutant Monitoring Techniques Development	A. O'Keefe		W. Stoney (NASA)
• Energy Related Air Pollutant Measurements and Instrumentation Development	W. Donaldson		H. Sorrows (NBS)
• Energy Related Low-Level Trace Contaminant Identification, Measurement, and Analysis of Solid Waste and Effluent Water	P. Greeson		↓
• Water Monitoring Field Instrumentation Development	F. Kilpatrick		
• Energy Related Surface and Groundwater Studies/Eastern Region	R. Wood		
• Development of Energy Related Air Measurement and Analytical Methods	↓		
• Development of Aqueous Effluent Analytical Methods for Energy/Related Sources	J. Mugler, Jr.		
• Energy Related Remote Sensing Instrumentation Development	W. Kirchoff		
• Energy Related Water Pollutant Analysis Method Development	↓		
• Energy Related Air Pollutant Analysis Method Development			
• Energy Related Water Pollutant Standard Reference Materials			
• Energy Related Air Pollutant Standard Reference Materials			
• Radiological Pollutant Standard Reference Materials			

PROJECT

PROJECT CONTACT

EPA COORDINATOR

AGENCY COORDINATOR

CHARACTERIZATION MEASUREMENT AND MONITORING (Continued)

- Development Instrumentation and Devices for the Measurement of Hazardous Agents in the Occupational Environment Associated with Energy Usage
- Lidar Techniques for Measuring Particulate Pollutants from Energy Production and their Transport and Dispersion Processes
- Standardized and Intercalibrated Techniques for Marine Monitoring
- Ocean Oil Spill Concentrating and Trajectory Forecast
- Underway Water Sampling System
- Isolation and Identification of Waterborne Pollutants Associated with the Power Industry (Steam Electric Power Generation)
- Development and Evaluation of an Integrated Approach to the Optimization of Nuclear Power Plant Radiological Surveillance Programs
- Synoptic Monitoring of SO₂ Effects on Vegetation
- Design a Service Assessment Sampling System
- Development of Particulate Measurement Technique for Process Evaluation
- Inorganic Sampling and Analysis of Process Streams
- Development of Process Measurements for POM and Other Organic Compounds
- Development of High Pressure, High Temperature Sampling
- Development of Fugitive Emission Measurement Techniques

J. Bryant

G. D'Alessio

J. Finklea (NIOSH)

V. Derr

J. Townsend, Jr. (NOAA)

R. Farland

C. Barrientos

M. Ringenbach

C. Holley

P. Krenkel (TVA)

J. Oppold

T. Montgomery

A. B. Craig

S. Gage (EPA)

PROJECT	PROJECT CONTACT	EPA COORDINATOR	AGENCY COORDINATOR
ENVIRONMENTAL TRANSPORT PROCESSES			
• Fate of Specific Pollutants in Fresh Waters	H. Enos	C. Hall	S. Gage (EPA)
• Chemical, Physical and Meteorological Studies of Energy-Related Pollutants in the Atmosphere	W. Wilson	G. D'Alessio	
• Transport and Fate of Energy-Related Pollutants in Groundwaters	W. Galegar	C. Hall	
• Determine Transformation Pathways, Physical and Chemical Perturbation and Toxicity of Crude Oil to Freshwater Organisms in Arctic Lakes	F. Rainwater		
• Determine Transport Pathways, Transfer Rates and Fate of Pollutants and Degradation Products of Crude Oil in Soil and Active Layer of Permafrost Terrain			
• Determine Mechanisms of Transformations, Degradation, Fate and Effect of Crude Oil in Stream Ecosystems			
• Extension of Multi-Layer, Two-Dimensional (Horizontal) Model of Circulation to Accept a Heated Discharge as a Pollutant			
• Determination of Persistence and Dispersion of Chlorine from On-Shore Cooling Discharges	D. Baumgartner		
• Determine the Dynamics of Dispersion and Dissipation in Marine and Estuarine Waters and the Effects on Marine and Estuarine Organisms, and Long-Term Ecosystem Impacts of Waste Heat and Biocides Derived from Coastal and Off-Shore Power Plants; Develop Ecosystem Models of Fate and Effects of Thermal and Biocide Discharges Ranging From Simple Planktonic Assemblages to Controlled Field Studies	W. Davis		
• Spill Persistence in Tundra and Impacts in Sub-Surface Arctic Ecosystem	C. White		J. Liverman (ERDA)
• Fate and Effects of Pollutants in Terrestrial Ecosystems in Four Corners Area and Mojave Desert	F. Turner		
• Determination of the Transportation and Fate of Fuel Wastes Through Soil at Solid Waste Sites	J. Liverman		
• Determination of Organic Pollutant Load and Dynamics of Resulting Refinery Wastes into Marine Waters	P. Harrison		
• Determination of the Load and Dynamics of Oil Refinery Wastes in Lake Michigan	J. Liverman		
• Evaluation of the Effects of Cooling Towers on Weather Modification	D. Hamilton, Jr.		
• Transport, Transformation, Fate and Effects of Toxic Metals, Petroleum Hydrocarbons in Selected Marine Ecosystems	D. Wolfe		J. Townsend, Jr. (NOAA)
• Evaluation of Models for Predicting Radiological Impact of Gaseous Releases from Nuclear Power Plants	J. Oppold	G. D'Alessio	P. Krenkel (TVA)
• Development of Simulation Models of Thermal Dispersion of Fluid Mechanics in Streams and Reservoirs	W. Nicholas	C. Hall	
• Determination of Atmospheric Transport and Transformation of Emissions from Coal-Fired Power Plants	T. Montgomery	G. D'Alessio	
• Formation rates of Inorganics of Acids from Strip-Mines and Transportation in Waterways	W. Nicholas	C. Hall	
• Determination of Presence and Abundance of Pests and Quantitative Significance in Selected Strip Mines Pools	W. Nicholas	C. Hall	

PROJECT	PROJECT CONTACT	EPA COORDINATOR	AGENCY COORDINATOR
HEALTH EFFECTS			
• Water Exposure and Their Effects: Heavy Metals and Toxic Organic Chemicals	R. Tardiff	G. Rausa	S. Gage (EPA)
• Multi-Route Exposures and Their Effects	J. Stara		
• Characterize Human Exposure to Pollutants Emitted in Ambient Air as a Result of Coal Conversion and Utilization	C. Hayes		
• Under Controlled Experimental Conditions Assess Human Exposure-Effects Relationships	G. Hueter		
• Develop and Apply Cytological, Biochemical, and Physiological Indicators of Biodamage Resulting from Exposure to Pollutants Associated with Energy Development	M. Waters		
• Identify the Most Potent Carcinogens, Mutagens, Teratogens, and Physiologically Detrimental Agents in Process Streams, Products and By-Products, and Effluents from Major Fossil Fuel Extraction and Conversion Technologies	G. Stapleton		J. Liverman (ERDA)
• Develop Cytological and Biochemical Indicators to Estimate Toxicity from Oil and Coal Extraction, Conversion and Utilization	G. Duda		
• Determine Effects and Organ Distribution of Hazardous Trace Metals and Polycyclic Hydrocarbons Associated with Coal and Oil Shale Extraction, Conversion and Utilization	M. Schulman		
• Assess the Hazards of Trace and Heavy Metals of Non-Nuclear Energy Technologies Using Chromosome Abberation, Isozyme Patterns and Teratogenic Effects on Mammalian Embryos as Indicators	G. Shephard		
• Identify Effects on Cells and Cell Components Resulting from Pollutants from Energy Technologies	L. Hart		D. Hall (NIEHS)
• Dose Effect Relationship for Physical Effects of Toxic Agents in Energy Technologies	R. Dixon		
• Develop and Test Models and Concepts for Extrapolation of Cellular and Animal Data to Man Using Toxic Agents from Energy Technologies	D. Hoel		
• Determine Dose Effects of Exposure to Mutagenic Agents Associated with Energy Technologies	F. de Serres		
• Assess the Metabolism, Fate and Toxicology of Particulates and Organic Compounds Associated with Energy Technologies	L. Hart		
• Develop Physiological Indicators of Damage from Toxic Agents	F. de Serres		
• Mechanisms of Incorporation, Metabolism, Deposition and Turnover of Energy Related Hazardous Materials	R. Dixon		
• Assessment of Effects of Occupational Exposure to Coal Technologies	B. Bruckner		J. Finklea (NIOSH)
• Conduct Environmental and Industrial Studies of Occupational Exposures to Insulation Materials	J. Lee		
• Assess Health Effects of the Recirculation of Exhaust Air	R. Hughes		

PROJECT

PROJECT CONTACT

EPA COORDINATOR

AGENCY COORDINATOR

ECOLOGICAL EFFECTS

- Development of Models for Comparison of Pollutant Impact on Population Dynamics of Fishes
- Determination of Acute and Chronic Toxicological Effects on Marine/Estuarine Organisms and Ecosystem Impacts of Pollutants from Petroleum Extraction and Discharges from Refineries and Fossil-Fueled Power Plants
- Determination of Thermal Effects on Marine Organisms and by Synergism with Metals
- Determination of the Immediate and Long-Term Dose-Response Relations of Pollutants on Selected Western Arid and Grassland Species from Coal and Oil Shale Processes
- Determination of the Effects of Heat and Vapor Discharge from Cooling Systems on Local Weather
- Determination of the Nature, Loading, Distribution and Long-Term Effects of Crude Oil in the Gulf of Alaska Marine and Estuarine Ecosystem
- Determination of Toxicity to Marine Organisms of Petrochemicals and Energy Related Organic Solvents from Offshore Activities and Ocean Dumping
- Determination of Acute and Chronic Toxicological Effects on Freshwater Organisms and Ecosystem Impacts of Pollutants and Complex Effluents Released by Coal and Oil Shale Processes
- Determination of Long-Term Effects on Waste Heat in the Surface Waters of the Great Lakes Basin on Aquatic Species and Community Populations
- Development of a Comprehensive Information Profile for Major Freshwater Aquatic Environments that could be Affected by Energy Development; this will be done Through a Number of Resource Specific Biological Studies
- Development of Ambient Sampling Procedure at Geothermal Sites. Identification, Quantification of Air Pollutants, Water Discharges and Noise Levels will be made.
- Assessment of Environmental Impacts Resulting from Energy Resource Development. These will Include Land Use, Water and Air Quality
- Assessment of the Impacts of Expansion of the Uranium Industry
- Assess Quality of Water in Strip-Mined Areas as it relates to Habitat for Aquatic Organisms and Wildlife Species Associated With These Water Bodies
- Assess the Redepositioning and Stabilizing of Mine Spoils and Identify Technologies that will Enhance Water Quality for Associated Aquatic Life
- Assess Effects of Mining-Related Transportation Systems in Water, Air, Soil, Plant, Animal and Aesthetic Resources
- Develop Operational Technical Information System for Reclamation of Lands Affected by Mining

E. Schneider

W. Preston

S. Gage (EPA)

C. Hall

N. Glass

F. Rainwater

F. Rainwater

T. Duke

D. Mount

W. Preston

D. Mount

W. Preston

T. Thoem

C. Hall

H. Brown

W. Preston

R. Callaham (USDA)

C. Hall

PROJECT	PROJECT CONTACT	EPA COORDINATOR	AGENCY COORDINATOR
ECOLOGICAL EFFECTS (Continued)			
• Develop Reclamation Plan Before Mining Operation Begins	H. Barrows	C. Hall	C. Carlson (USDA)
• Determine Effect of Strip-Mining and Reclamation Processes on the Quality and Quantity of Water Leaving the Area			
• Determine Effect of Strip-Mine Reclamation Practices on the Nutritional Quality of Forages or Other Crops Grown on Reclaimed Area			
• Assess and Model Effects of Previous Mining Methods, Spoil Characteristics and Reclamation of Surface and Groundwater (Hydrologic Management in Strip-Mining)	D. Kirkham		E. Miller (USDA)
• Conduct Experiments on Plants of Fast Growing Trees to Assess Growth Support Capabilities of Specific Sites in Relation to Water Quality and Spoil Characteristics (Use of Sewage Sludges and Topsoil in Reclaiming Coal Strip-Mine Spoil)	F. Haghari		
• Expand Existing "Resources Inventory, Information Management and Monitoring Systems" for Collection, Assimilation and Analyses of Natural Resources and Pollution Data Related to Coal Extraction (Resource Inventory Monitoring and Analysis System, RIMAS)	J. Johnson		
• Evaluate Species and Seed Sources for Revegetation of Energy Resource Extraction Areas with Native Plants	H. Barrows		C. Carlson (USDA)
• Determine Soil Characteristics Developing on Spoils of Varying Ages Relating to Root Growth and Biological Productivity	H. Barrows		C. Carlson (USDA)
• Summarize Results of Laboratory Experiments and Field Observations to Evaluate the Physiological, Toxicological and Ecological Effects of Oil, Primarily on Ducks	L. Stickel		A. Hirsch (USFWS)
• Describe Effective Guidelines and Methodology for the Development, Synthesis, Analysis and Interpretation of Complex Ecological and Biological Information Relative to Major Coastal Ecosystems	H. Tait		
• Prepare Reports on Three Coastal Regions Subject to Energy Development. Place Emphasis on Value of Resources such as Fish, Wildlife and Ecological Processes Subject to Man-Induced Environmental Alternatives	H. Tait		
• Identify and Demonstrate a Rapid, Cost-Effective and Reliable Method of Inventorying and Characterizing Wildlife Habit. Special Emphasis Being Placed on Requirements for Food, Cover, Breeding and Other Critical Factors	R. Stewart, Jr.		
• Determine Water Quantity Requirements of Fish and Wildlife in the Upper Colorado and Upper Missouri River Basins	R. Hayden	W. Preston	

PROJECT	PROJECT CONTACT	EPA COORDINATOR	AGENCY COORDINATOR
ECOLOGICAL EFFECTS (Continued)			
• Develop In-Stream Flow Methodologies to Determine Flow Requirements for Biological/Fisheries Stability in Areas Affected by Increased Energy Development—Both East and West	R. Hayden	C. Hall	A. Hirsch (USFWS)
• Develop Mechanism to Identify and Monitor the Activities of Endangered Species in Areas Under Stress from Energy Development	R. Hayden		A. Hirsch (USFWS)
• Effects of Oil Spills on Tundra and Thaw Ponds	C. White		J. Liverman (ERDA)
• Effects of Construction Operations of Alaska Pipeline on Aquatic Habitats	C. White		
• Effects of Trace Metals on Crop and Forest Ecosystem	D. Ballantine		
• Biological Indices of Pollutant Effects on Freshwater Ecysystems	C. Coutant	W. Preston	
• Long-Term Effects of Hydrocarbons on Selected Ecosystems and Associated Organisms	J. Blanton	W. Preston	
• Surveys on Oil Extraction and Transport and Related Effects on Coastal Ecosystems	J. Blanton	C. Hall	
• Intake of Metals by Marine Organisms	L. Hart		D. Rall (NIEHS)
• Compare Pharmacokinetics and Toxicity in Mammals of Metals Consumed in Diet Through Shellfish Vs. Drinking of H ₂ O			
• Synergistic Action of Temperature with Other Pollutants on Marine Species (Vertebrate and Invertebrate)			
• Relationship Between Toxic Fractions of Crude Oil and Petroleum Products and Tumor Formation in Marine Species			
• Conduct Environmental Assessment of Northern Puget Sound and Strait of Juan De Fuca	H. Harris		J. Townsend, Jr. (NOAA)
• Develop Predictive Capability for Impacts of Petroleum-Related Activities on Northern Puget Sound and Strait of Juan De Fuca	D. Wolfe		
• Perform a Comparison/Analysis of an Existing Marine Ecosystem Under Stress of an Active Oil Field with a Similar Ecosystem in an Undisturbed Area	J. Angelovic		
• Design, Establish, Operate, Evaluate and Refine a Data Management System for Interagency Energy-Related Marine and Meteorological Programs	J. Berger	G. D'Alessio	
• Relationships of Atmospheric Pollutants (SO _x + NO _x) from Coal Fired Power Plants on Terrestrial Ecosystems	T. Montgomery	C. Hall	P. Krenkel (TVA)
• Thermal Effects From Mechanical Draft Cooling Towers on Vegetable and Soils	T. Montgomery		
• Thermal Impacts on Freshwater, Shellfish, Insects, and Other Biota (Organisms)	N. Nicholas		

PROJECT

PROJECT CONTACT

EPA COORDINATOR

AGENCY COORDINATOR

INTEGRATED ASSESSMENT

- Integrated Technology Assessment Support for Western Energy Development
- Methodology Development for the Strategic Environmental Assessment System
- Integrated Technology Assessment of Energy Development in the Appalachian Region
- Integrated Technology Assessment of Coal-Based Energy Development
- Supportive Studies in Integrated Technology Assessment of Electrical Utilities
- Develop and Coordinate Effective Internal and External Information Transfer for the Interagency Program
- Assess the Socioeconomic Consequences of Coal and Oil Shale Development
- Assess the Socioeconomic Impact of Energy Conservation for the Residential Sector
- Develop a Cost/Risk/Benefit Methodology for Western Energy Development
- Coordinate a National Design for an Environment/Energy R&D Information System
- Develop Energy/Environment Economic Projection Models for Multi-County Areas
- Develop a Model to Forecast Residual Output of an Expanded Power System
- Develop Applications of Computer Graphics for Regional Integrated Assessment of Power Systems

S. Plotkin

R. Shobe

V. Jelen

W. Tucker

L. Smith

R. Laska

V. Davis

K. Credle

J. Olson

J. Olson

H. Hynote

D. Walters

R. Hickey

S. Plotkin

S. Reznick

L. Smith

R. Laska

S. Reznick

S. Gage (EPA)

S. Gage (EPA)

G. Taylor (USDA)

V. Vollero (HUD)

J. Liverman (ERDA)

J. Liverman (ERDA)

P. Krenkel (TVA)

PROJECT

PROJECT CONTACT

EPA COORDINATOR

AGENCY COORDINATOR

ENERGY RESOURCE EXTRACTION

• Oil and Gas Production

- Assess, Develop and Demonstrate Methods, Equipment and Techniques to Control and Cleanup 75% Spills of Oil on Land and Water Including Limiting Extent of Contamination and Mitigating Adverse Environmental Effects
- Assess, Develop and Demonstrate Proven Techniques for the Protection and Restoration of Shorelines due to Oil Contamination; Include Ocean, Estuarine Inland River and Lake and Cold Climate
- Evaluate Effectiveness of 1973 Oil Spill Prevention Regulation (40 CFR, Part 112, Fed. Reg. Vol. 38, No. 237, 11 Dec. 1973) in Achieving 1985 Goal of 85% Spill Incident Reduction and Develop Information to Modify as Necessary
- Assess, Develop and Demonstrate Control Technology to Minimize Adverse Environmental Impacts from the Installation and Operation of Offshore Oil and Gas Production Facilities; Include Offshore Platform, Product Transportation Systems and Shore Termination Facilities
- Assess, Develop and Demonstrate Proven Cost/Effective Methods to Treat Bilge and Ballast Water at Shore Reception Facilities Including Existing Ports and Planned Deep Water Ports
- Develop Guidelines to Control Environmental Impact During Secondary and Tertiary Recovery Program Including Onshore and Offshore
- Assess, Develop and Demonstrate Spill Control Techniques, Equipment and Methods for the Onshore Storage and Transportation of LNG

I. Wilder

D. O'Bryan

S. Gage (EPA)

• Solid Fossil Fuels

- Assess, Develop and Demonstrate Methods to Prevent and Control Air, Water, Solid Waste and Other Environmental Damages from Active and Abandoned Eastern U.S. Coal Surface Mines, Including Surface Disturbances from all Coal Mining Operations and Beneficiation Facilities
- Assess, Develop and Demonstrate Methods to Prevent and Control Air, Water, Solid Waste and Other Environmental Damages from Active and Abandoned Eastern U.S. Coal Underground Mines
- Assess, Develop and Demonstrate Methods to Prevent and Control Air, Water, Solid Waste and Other Environmental Damages from Active and Abandoned Western U.S. Coal Surface and Underground Mines and Surface Disturbances Associated with Them; also include Alaska Coal Mining
- Assess, Develop and Demonstrate Methods to Prevent and Control Air, Water, Solid Waste and Other Environmental Damages from Oil Shale and Tar Sands Extraction Disposal of Spent Waste from Beneficiation, Such as Spent Shale
- Assess, Develop and Demonstrate Methods to Prevent and Control Air, Water, Solid Waste and Other Environmental Damages (Except Radiation) from Active and Abandoned Uranium Extraction and Beneficiation Operations
- Assess, Develop and Demonstrate Methods to Prevent and Control Environmental Damages from the Transportation of Solid Fuels by Rail, Truck, Pipelines, etc.

E. Harris

• Reduce Adverse Environmental Effects from Uranium Mill Wastes

R. Kennedy

• Eastern Coal Surface Mining: Vegetative Methods and Materials

H. Brown

• Western Coal and Oil Shale Mining: Vegetative Methods and Materials

R. MacLaughlin

• Surface Manipulations for Enhanced Coal and Oil Shale Mine Vegetation

H. Barrows

J. Liverman (ERDA)

R. Callahan (USDA)

V. Barry (USDA)

C. Carlson (USDA)

PROJECT	PROJECT CONTACT	EPA COORDINATOR	AGENCY COORDINATOR
PHYSICAL/CHEMICAL COAL CLEANING			
<ul style="list-style-type: none"> • Perform Environmental Assessment of Coal Transportation, Storage, and Cleaning Technologies 	R. Hangebrauck	F. Princiotta	S. Gage (EPA)
<ul style="list-style-type: none"> • Investigate, Test, Evaluate and Develop Coal Cleaning Technology and Process Controls 	R. Hangebrauck		S. Gage (EPA)
<ul style="list-style-type: none"> • Characterize Potentially Harmful or Valuable Trace Elements in Coal Cleaning Wastes 	R. Kennedy		J. Liverman (ERDA)
<ul style="list-style-type: none"> • Develop a Coal Washing Test Facility 	A. Deurbrouck		T. Falkie (USBM)
<ul style="list-style-type: none"> • Demonstrate Disposal and Reuse Processes for Coal Cleaning Wastes 			
<ul style="list-style-type: none"> • Report on Results of Tests of Cleanability of Northern Appalachian Coals 			
FLUE GAS CLEANING			
<ul style="list-style-type: none"> • Develop and Demonstrate Non-Regenerable Flue Gas Desulfurization Technology 	E. Plyler	D. Graham	S. Gage (EPA)
<ul style="list-style-type: none"> • Develop and Demonstrate Several Processes for Regenerable Flue Gas Desulfurization 			
<ul style="list-style-type: none"> • Enhance the Means of Flue Gas Desulfurization Technology Transfer 			
<ul style="list-style-type: none"> • Develop Techniques for Disposal or Use of Waste Pollutants from Combustion Sources and Associated Control Processes 			
<ul style="list-style-type: none"> • Environmental Impact Assessment of NO_x Flue Gas Treatment Technology 			
<ul style="list-style-type: none"> • Assessment of State-of-the-Art and Development of Technology for NO_x Flue Gas Treatment 			
<ul style="list-style-type: none"> • Development of Control Technology for Removing Fine Particulates from Waste Gases 			
<ul style="list-style-type: none"> • Multi-Media Pollutant Assessment for Conventional Combustion Systems 	A. B. Craig		
<ul style="list-style-type: none"> • Development of Processes for Disposal of Flue Gas Cleaning Wastes 	E. Plyler		
<ul style="list-style-type: none"> • Environmental Assessment Applications Testing of Combustion Modification Technology for Stationary Sources 	R. Hangebrauck		
<ul style="list-style-type: none"> • Development of Flue Gas Desulfurization Technology—Shawnee Lime/Limestone Scrubbing Program 	H. Elder		P. Krenkel (TVA)
<ul style="list-style-type: none"> • Energy Requirement Conservation Study of Selected Processes for Removing SO₂ from Power Plant Stacks 			
<ul style="list-style-type: none"> • Develop Comparative Economics of Major Stack Gas Emission Control Processes 			
<ul style="list-style-type: none"> • Advanced SO₂ Removal Process Improvements 			
<ul style="list-style-type: none"> • Processing Sludges from Lime/Limestone Wet Scrubbing Processes for Disposal or Recycle and Studying Disposal of FBC Waste Products 			
<ul style="list-style-type: none"> • Characterization of Effluents from Coal Fired Utility Boilers 	H. Flora II		
<ul style="list-style-type: none"> • Fly Ash Characterization and Disposal 	W. McKinney		
<ul style="list-style-type: none"> • Evaluation of Marketing By-Products from Flue Gas Desulfurization Processes 	H. Elder		
<ul style="list-style-type: none"> • Pilot Demonstration of Ammonia—ABS Process 	H. Elder		

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DIRECT COMBUSTION			
<ul style="list-style-type: none"> Environmental Assessment of Pollutants and Processes Associated with Fluidized Bed Combustion 	R. Hangebrauck	F. Princiotta	S. Gage (EPA)
<ul style="list-style-type: none"> Development of Control Technology for Pollutants Resulting from Fluidized Bed Combustion 	↓	↓	↓
<ul style="list-style-type: none"> Chemically Active Fluidized Bed Residual Oil Cleanup Technology 	R. Kennedy		J. Liverman (ERDA)
<ul style="list-style-type: none"> Development of Control Technology for Pollutants and Processes with Fluidized Bed Combustion 			
SYNTHETIC FUELS			
<ul style="list-style-type: none"> Environmental Assessment of Potential Pollutants from Fossil Fuel Conversion 	R. Hangebrauck	F. Princiotta	S. Gage (EPA)
<ul style="list-style-type: none"> Development of Multi-Media Pollution Control Technology for Synthetic Fuel Processes 	↓	↓	↓
<ul style="list-style-type: none"> Environmental Assessment of Potential Pollutants from Advanced Oil Processing of Petroleum Residuals 	T. Powers		
<ul style="list-style-type: none"> Development of Multi-Media Pollution Control Technology for Oil Processes 	T. Powers		
<ul style="list-style-type: none"> Identify Potential Pollutants and Develop Control Technology for Oil Shale Processes 	E. Plyler		
<ul style="list-style-type: none"> Identify Potential Pollutants and Develop Control Technology for Non-Coal Synthetic Fuel Processes 	R. Kennedy		J. Liverman (ERDA)
<ul style="list-style-type: none"> Develop Technology for High Temperature/Pressure Particulate Control for Advanced Energy Systems 	R. Kennedy	↓	J. Liverman (ERDA)
<ul style="list-style-type: none"> Environmental Assessment of Potential Pollutants from Fossil Fuel Conversion 			
<ul style="list-style-type: none"> Development of Multi-Media Pollution Control Technology for Synthetic Fuel Processes 			
NUCLEAR WASTE			
<ul style="list-style-type: none"> Assessment of Environmental Impact and Analysis of Control Technologies for Radioactive Materials Associated with Thorium/Uranium-233 	G. Huffman	G. Rey	S. Gage (EPA)
<ul style="list-style-type: none"> Updating and Extending the Technology Assessment Methodology for Radioactive Waste Management 	C. Weaver	↓	↓
<ul style="list-style-type: none"> Evaluation of Problems and Limitations of Ocean Dumping as a Radioactive Waste Management Alternative 	↓	↓	↓
<ul style="list-style-type: none"> Improving Model for Simulating Groundwater Transport of Radioactive Pollutants from Buried Low-Level Radioactive Wastes 			
<ul style="list-style-type: none"> Definition of the Radon-222 Source Level from Uranium Wastes 			
<ul style="list-style-type: none"> Management and Engineering Study for Commercial Low-Level Burial Sites 			
<ul style="list-style-type: none"> Assessment of Radionuclide Retention in Soils 			
<ul style="list-style-type: none"> Control of Radiological Impacts from Recovery of Uranium from Phosphate and Other Mineral Ores, Products, By-Products and Wastes 			
<ul style="list-style-type: none"> Emergency Response Planning for a Nuclear Incident at a Fixed Nuclear Facility 	↓	↓	↓

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<ul style="list-style-type: none"> • Evaluation of Performance and Economics of Advanced Cooling Technology 	E. Plyler	D. Graham	S. Gage (EPA)
<ul style="list-style-type: none"> • Utilization of Waste Heat and Water from Utility and Industrial Plants 	E. Plyler		
<ul style="list-style-type: none"> • Development of Ice Fog Control Technology for Stationary Sources 	A. Bartsch		
<ul style="list-style-type: none"> • Test and Evaluation of Advanced Waste Heat Control Technologies 	H. Flora		P. Krenkel (TVA)
<ul style="list-style-type: none"> • Waste Heat Utilization in Soil to Extend Crop Growing Season 	B. Bond		
<ul style="list-style-type: none"> • Waste Heat Utilization to Optimize Biological Recycling of Nutrients in Livestock Wastes 			
<ul style="list-style-type: none"> • Development of Waste Heat Environmental Controls for Combined Livestock Operations 			
IMPROVED EFFICIENCY			
<ul style="list-style-type: none"> • Environmental Assessment of Energy Conserving Processes and Techniques in High Energy Consumption Industries 	H. Bostian	D. Berg	S. Gage (EPA)
<ul style="list-style-type: none"> • Development of Energy Efficient Pollution Control Technology for Industrial Processes 	H. Bostian		
<ul style="list-style-type: none"> • Characterization of Multi-Media Pollutants Resulting from Using Wastes as Fuel 	H. Freeman		
<ul style="list-style-type: none"> • Identify and Characterize Industrial Waste Streams 	G. Huffman		
<ul style="list-style-type: none"> • Evaluation of Major Processes for Co-Firing Waste with Coal or Other Wastes 	R. Olexsey		
<ul style="list-style-type: none"> • Develop Processes for Co-Firing Wastes with Oil 	R. Olexsey		
<ul style="list-style-type: none"> • Evaluate Processes for Thermochemical Conversion of Wastes 	W. Liberick		
<ul style="list-style-type: none"> • Assessment and Development of Air Pollution Control Technology for Waste-as-Fuel Processes 	R. Olexsey		
<ul style="list-style-type: none"> • Assessment of the Potential Environmental Impact of Advanced Cycles 	W. Cain		
<ul style="list-style-type: none"> • Assessment and Development of Control Technology for Indoor Air Pollution Resulting from Improved Efficiency 	D. Schearer		
<ul style="list-style-type: none"> • Assistance in Developing Criteria for Pollutants Resulting from Waste-as-Fuel Processes 	R. Stenburg		
<ul style="list-style-type: none"> • Perform Waste Stream Surveys for Non-Industrial Waste Sources 			
<ul style="list-style-type: none"> • Assess Existing Processes for the Separation of Recoverable Materials from Solid Waste 			
<ul style="list-style-type: none"> • Assessment of Existing Processes for Preparing Refuse-Derived Fuels and Feedstocks 			
<ul style="list-style-type: none"> • Assessment of the Co-Incineration of Sewage Sludge with Waste 			
<ul style="list-style-type: none"> • Evaluate Major Bioconversion Waste-to-Energy Processes 			
ADVANCED SYSTEMS			
<ul style="list-style-type: none"> • Geothermal Environmental Impact Assessment: Surface and Groundwater Monitoring for Contaminants 	D. Gilmore	D. Berg	S. Gage (EPA)
<ul style="list-style-type: none"> • Comprehensive Assessment of geothermal Control Technology 	R. Hartley		
<ul style="list-style-type: none"> • Comprehensive Environmental Assessment of the Use of Solar Energy 	R. Hartley		

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