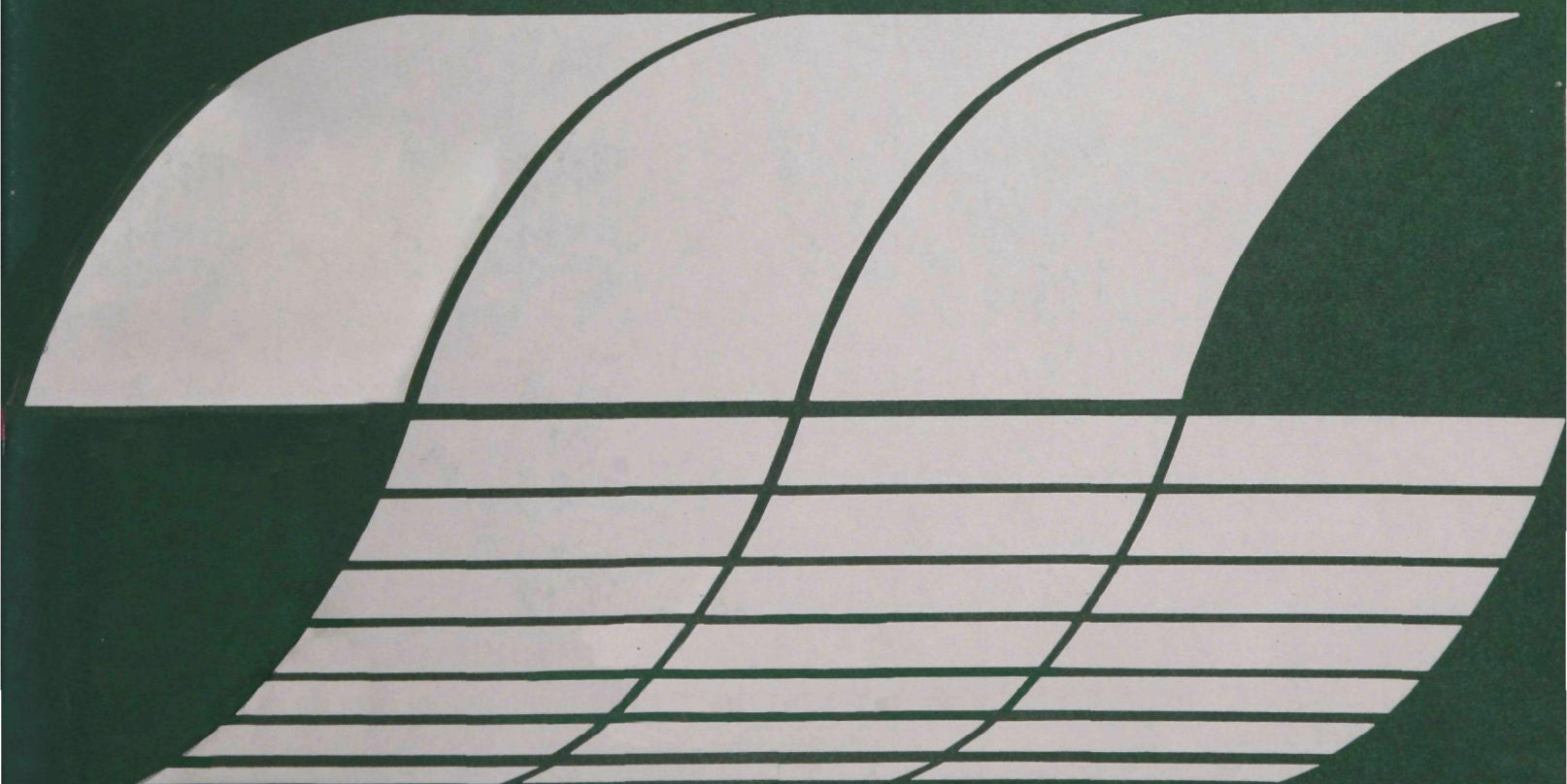


November 1976

Fiscal Year 1975  
Control Technology  
Research Program Abstracts

Interagency  
Energy-Environment  
Research and Development  
Program Report



## INTRODUCTION

The Environmental Protection Agency/Office of Research and Development has prepared this research directory in an effort to better coordinate information dissemination for environmental control technology research. This directory supersedes the "Fiscal Year 1975 Control Technology Research Program Abstracts," published in April 1976. Specific modifications include more comprehensive information as to funding, support method, task, project officer, responsible organization and pertinent dates.

The project level descriptions contained in this volume constitute technical and programmatic information concerning the Environmental Protection Agency/Office of Research and Development's environmental control technology research. Each project has been funded by the FY 1975 Interagency Energy/Environment supplemental appropriation being coordinated by the Office of Energy, Minerals and Industry. In addition, each project has been assigned to one of nine research development and demonstration categories: Energy Resource Extraction, Physical and Chemical Coal Cleaning, Flue Gas Cleaning, Direct Combustion, Synthetic Fuels, Nuclear, Thermal, Improved Efficiency and Advanced Systems.

Project descriptions are culled from "Notice of Research Project" forms. These forms have been prepared under sponsorship of appropriate laboratories and agencies using the Smithsonian Science Information Exchange System (SSIE) format.

Tables have been prepared to reflect the EPA/ORD FY 1975 supplemental energy appropriation budget that is directed toward energy-related control technology activities. Tables 1 through 7 contain the funds budgeted by the Environmental Protection Agency to a single agency; Table 1 represents in-house EPA funding, while Tables 2-7 indicate those agencies receiving EPA pass-through funds. Table 8 is a summary table of all pass-through funds, and Table 9 is a summary of both EPA in-house and pass-through funds.

The tables are arranged by objectives and fuel type (technology). Exhibit A indicates the objectives within the control technology category. The column headed "multi-fuel" includes all research dealing with five or more fuels, while the column headed "all" is a summation of all fuels within each objective. The summation row "6XX" provides totals for each fuel type. With these tables, it is possible to tell at a glance the funds directed to any control technology objective (row), fuel source (column), or agency (table).

Similar information on health and environmental effects of energy development is contained in a second volume covering: Ecological Effects, Transport and Fate, Characterization, Measurement and Monitoring, Health Effects, and Integrated Assessment.

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### II. CONTROL TECHNOLOGY RESEARCH

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2

2.

ENVIRONMENTAL PROTECTION AGENCY

AGENCY : ENERGY RESEARCH AND  
DEVELOPMENT ADMINISTRATION

AGENCY : ENERGY RESEARCH AND  
DEVELOPMENT ADMINISTRATION

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TABLE 3

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : FEDERAL ENERGY ADMINISTRATION

FUNDING(THOUSANDS)

KING CATEGORY CONTROL TECHNOLOGY	ALL	COAL	OIL/GAS	OIL SHALE	NUCLEAR	GEOTHERM	SOLAR	WASTE-FUEL	HYDROEL	CONSERVN	MULTI-FUEL
6XX	71	71	0	0	0	0	0	0	0	0	0
6A0	0	0	0	0	0	0	0	0	0	0	0
6A1	0	0	0	0	0	0	0	0	0	0	0
6A2	0	0	0	0	0	0	0	0	0	0	0
6A3	0	0	0	0	0	0	0	0	0	0	0
6B0	0	0	0	0	0	0	0	0	0	0	0
6C0	0	0	0	0	0	0	0	0	0	0	0
6C1	0	0	0	0	0	0	0	0	0	0	0
6C2	0	0	0	0	0	0	0	0	0	0	0
6C3	0	0	0	0	0	0	0	0	0	0	0
6C4	0	0	0	0	0	0	0	0	0	0	0
6D0	71	71	0	0	0	0	0	0	0	0	0
6D1	0	0	0	0	0	0	0	0	0	0	0
6D2	0	0	0	0	0	0	0	0	0	0	0
6E0	0	0	0	0	0	0	0	0	0	0	0
6F0	0	0	0	0	0	0	0	0	0	0	0
6F1	0	0	0	0	0	0	0	0	0	0	0
6F2	0	0	0	0	0	0	0	0	0	0	0
6G0	0	0	0	0	0	0	0	0	0	0	0
6H0	0	0	0	0	0	0	0	0	0	0	0
6H1	0	0	0	0	0	0	0	0	0	0	0
6H2	0	0	0	0	0	0	0	0	0	0	0
6H3	0	0	0	0	0	0	0	0	0	0	0
6H4	0	0	0	0	0	0	0	0	0	0	0
6I0	0	0	0	0	0	0	0	0	0	0	0
6I1	0	0	0	0	0	0	0	0	0	0	0
6I2	0	0	0	0	0	0	0	0	0	0	0
6J0	0	0	0	0	0	0	0	0	0	0	0

TABLE 4

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : TENNESSEE VALLEY AUTHORITY

FUNDING(THOUSANDS)

KING	CATEGORY	ALL	COAL	OIL/GAS	OIL SHALE	NUCLEAR	GEOTHERM	SOLAR	WASTE-FUEL	HYDROEL	CONSERVN	MULTI-FUEL
CONTROL	TECHNOLOGY											
6XX		8523	4934	1333	0	0	0	0	0	0	1906	350
6A0		0	0	0	0	0	0	0	0	0	0	0
6A1		0	0	0	0	0	0	0	0	0	0	0
6A2		0	0	0	0	0	0	0	0	0	0	0
6A3		0	0	0	0	0	0	0	0	0	0	0
6B0		0	0	0	0	0	0	0	0	0	0	0
6C0		410	369	41	0	0	0	0	0	0	0	0
6C1		2331	1435	615	0	0	0	0	0	0	281	0
6C2		0	0	0	0	0	0	0	0	0	0	0
6C3		0	0	0	0	0	0	0	0	0	0	0
6C4		0	0	0	0	0	0	0	0	0	0	0
6D0		150	150	0	0	0	0	0	0	0	0	0
6D1		0	0	0	0	0	0	0	0	0	0	0
6D2		0	0	0	0	0	0	0	0	0	0	0
6E0		0	0	0	0	0	0	0	0	0	0	0
6F0		0	0	0	0	0	0	0	0	0	0	0
6F1		0	0	0	0	0	0	0	0	0	0	0
6F2		4007	2980	677	0	0	0	0	0	0	0	350
6G0		1625	0	0	0	0	0	0	0	0	1625	0
6H0		0	0	0	0	0	0	0	0	0	0	0
6H1		0	0	0	0	0	0	0	0	0	0	0
6H2		0	0	0	0	0	0	0	0	0	0	0
6H3		0	0	0	0	0	0	0	0	0	0	0
6H4		0	0	0	0	0	0	0	0	0	0	0
6I0		0	0	0	0	0	0	0	0	0	0	0
6I1		0	0	0	0	0	0	0	0	0	0	0
6I2		0	0	0	0	0	0	0	0	0	0	0
6J0		0	0	0	0	0	0	0	0	0	0	0



TABLE 5

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : DEPARTMENT OF AGRICULTURE

FUNDING(THOUSANDS)

KING CATEGORY	ALL	COAL	OIL/GAS	OIL SHALE	NUCLEAR	GEOTHERM	SOLAR	WASTE-FUEL	HYDROEL	CONSERVN	MULTI-FUEL
CONTROL TECHNOLOGY											
6XX	1610	715	0	826	69	0	0	0	0	0	0
6A0	1610	715	J	826	69	0	0	0	0	0	0
6A1	J	0	0	0	0	0	0	0	0	0	0
6A2	J	J	0	J	0	0	0	0	0	0	0
6A3	J	0	0	0	0	0	0	0	0	0	0
6B0	0	J	0	0	0	0	0	0	0	0	0
6C0	0	0	0	0	0	0	0	0	0	0	J
6C1	0	0	0	0	0	0	0	0	0	0	J
6C2	0	0	0	0	0	0	0	0	0	0	J
6C3	0	0	0	0	0	0	0	0	0	0	0
6C4	0	0	0	0	0	0	J	J	0	J	J
6D0	0	0	0	0	0	J	0	0	0	0	0
6D1	0	0	0	J	0	0	0	J	0	0	0
6D2	0	0	0	J	0	0	J	J	0	0	0
6E0	0	J	J	J	0	J	J	J	0	0	0
6F0	0	J	0	J	0	J	0	0	0	0	0
6F1	C	J	J	J	0	J	J	J	0	0	0
6F2	0	0	0	0	0	J	J	0	0	0	0
6G0	0	J	0	J	J	J	0	0	0	0	0
6H0	0	0	0	0	0	0	0	0	0	0	0
6H1	J	J	J	J	0	0	0	0	0	0	0
6H2	0	0	0	0	0	0	0	0	0	0	0
6H3	0	J	0	0	0	0	0	0	0	0	0
6H4	0	0	0	0	0	0	0	0	0	0	J
6I0	0	0	0	J	0	0	0	0	0	0	0
6I1	0	0	0	0	0	0	0	0	0	0	J
6I2	0	0	0	0	0	0	0	0	0	0	J
6J0	0	0	0	0	0	0	J	J	J	J	J

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

FUNDING (THOUSANDS)

AGENCY : DEPARTMENT OF THE INTERIOR

[illegible]

TABLE 7

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : APPALACHIAN REGIONAL COMMISSION

FUNDING(THOUSANDS)

KING CATEGORY CONTROL TECHNOLOGY	ALL	COAL	OIL/GAS	OIL SHALE	NUCLEAR	GEO THERM	SOLAR	WASTE-FUEL	HYDROEL	CONSERVN	MULTI-FUEL
6AX	300	300	0	0	0	0	0	0	0	0	0
6A0	0	0	0	0	0	0	0	0	0	0	0
6A1	0	0	0	0	0	0	0	0	0	0	0
6A2	0	0	0	0	0	0	0	0	0	0	0
6A3	0	0	0	0	0	0	0	0	0	0	0
6A0	0	0	0	0	0	0	0	0	0	0	0
6C0	300	300	0	0	0	0	0	0	0	0	0
6C1	0	0	0	0	0	0	0	0	0	0	0
6C2	0	0	0	0	0	0	0	0	0	0	0
6C3	0	0	0	0	0	0	0	0	0	0	0
6C4	0	0	0	0	0	0	0	0	0	0	0
6D0	0	0	0	0	0	0	0	0	0	0	0
6D1	0	0	0	0	0	0	0	0	0	0	0
6D2	0	0	0	0	0	0	0	0	0	0	0
6E0	0	0	0	0	0	0	0	0	0	0	0
6F0	0	0	0	0	0	0	0	0	0	0	0
6F1	0	0	0	0	0	0	0	0	0	0	0
6F2	0	0	0	0	0	0	0	0	0	0	0
6G0	0	0	0	0	0	0	0	0	0	0	0
6H0	0	0	0	0	0	0	0	0	0	0	0
6H1	0	0	0	0	0	0	0	0	0	0	0
6H2	0	0	0	0	0	0	0	0	0	0	0
6H3	0	0	0	0	0	0	0	0	0	0	0
6H4	0	0	0	0	0	0	0	0	0	0	0
6I0	0	0	0	0	0	0	0	0	0	0	0
6I1	0	0	0	0	0	0	0	0	0	0	0
6I2	0	0	0	0	0	0	0	0	0	0	0
6J0	0	0	0	0	0	0	0	0	0	0	0

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TABLE 8

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : TOTAL PASS-THROUGH FUNDS

FUNDING (THOUSANDS)

[illegible]



TABLE 9

## ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : TOTAL FY75 ENERGY FUNDS

FUNDING(THOUSANDS)

KING CATEGORY CONTROL TECHNOLOGY	ALL	COAL	OIL/GAS	OIL SHALE	NUCLEAR	GEOTHERM	SOLAR	WASTE-FUEL	HYDROEL	CONSERVN	MULTI-FUEL
6XX	82563	55458	11791	2021	1314	325	0	3650	0	4000	4004
6A)	7075	5307	665	1034	69	0	0	0	0	0	0
6A1	0	0	0	0	0	0	0	0	0	0	0
6A2	350	0	350	0	0	0	0	0	0	0	0
6A3	0	0	0	0	0	0	0	0	0	0	0
6A3	0	0	0	0	0	0	0	0	0	0	0
6A3	4628	4628	0	0	0	0	0	0	0	0	0
6C0	34560	29541	4859	40	0	0	0	0	0	120	0
6C1	2651	1691	679	0	0	0	0	0	0	281	0
6C2	50	40	10	0	0	0	0	0	0	0	0
6C3	130	104	26	0	0	0	0	0	0	0	0
6C4	700	0	200	0	0	0	0	0	0	0	0
6D0	785	485	300	0	0	0	0	0	0	0	0
6D1	3550	3950	0	0	0	0	0	0	0	0	0
6D2	3700	0	3700	0	0	0	0	0	0	0	0
6E0	7124	6422	325	927	0	0	0	50	0	0	0
6F0	850	0	0	0	850	0	0	0	0	0	0
6F1	20	0	0	0	20	0	0	0	0	0	0
6F2	4382	2980	677	0	375	0	0	0	0	0	350
6G0	3615	60	0	20	0	0	0	0	0	2600	935
6H0	5568	250	0	0	0	0	0	3600	0	999	719
6H1	0	0	0	0	0	0	0	0	0	0	0
6H2	0	0	0	0	0	0	0	0	0	0	0
6H3	0	0	0	0	0	0	0	0	0	0	0
6H4	0	0	0	0	0	0	0	0	0	0	0
6I0	2000	0	0	0	0	0	0	0	0	0	2000
6I1	0	0	0	0	0	0	0	0	0	0	0
6I2	325	0	0	0	0	325	0	0	0	0	0
6J0	0	0	0	0	0	0	0	0	0	0	0

EXHIBIT A  
RESEARCH CATEGORY

CONTROL TECHNOLOGY  
6XX SUMMATION OF CONTROL TECHNOLOGY  
6A0 ENERGY RESOURCE EXTRACTION  
6A1 COAL/OIL SHALE  
6A2 OFF-SHORE OIL/GAS  
6A3 ON-SHORE OIL/GAS  
6B0 PHYSICAL/CHEMICAL COAL CLEANING  
6C0 FLUE GAS CLEANING  
6C1 SO<sub>x</sub> CONTROL  
6C2 NO<sub>x</sub> CONTROL  
6C3 PARTICULATES  
6C4 HAZARDOUS MATERIALS  
6D0 DIRECT COMBUSTION  
6D1 FLUIDIZED BED COMBUSTION  
6D2 CFB  
6E0 SYNTHETIC FUELS  
6F0 NUCLEAR WASTE CONTROL  
6F1 MINING/MILLING  
6F2 WASTE STORAGE/DISPOSAL  
6G0 THERMAL CONTROL  
6H0 IMPROVED EFFICIENCY  
6H1 FUEL CELLS  
6H2 ADVANCED POWER CYCLES  
6H3 WASTES AS FUEL  
6H4 INDUSTRIAL PROCESS CHANGE  
6I0 ADVANCED SYSTEMS  
6I1 SOLAR  
6I2 GEOTHERMAL  
6J0 ADVANCED AUTOMOTIVE POWER SYSTEMS

X

# ENERGY RESOURCE EXTRACTION

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 435-PHS-1	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SCIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<b>77-AAA</b>	
TITLE OF PROJECT "Environmental Impact of Steep Slope Mining"			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Ben E. Lusk, President West Virginia Surface Mining and Reclamation Association			
NAME AND ADDRESS OF APPLICANT INSTITUTION  West Virginia Surface Mining and Reclamation Association 1624 Kanawha Boulevard, East Charleston, West Virginia 25311			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The primary objective of the project is to evaluate the effectiveness of the modified box-cut method of surface mining in reducing the impact on the surrounding environment.  The proposed work will be conducted at a working site on Trace Creek in Mingo Co., West Virginia, and will consist of the following tasks: (1) Determine environmental baseline parameters; (2) Documentation of mining operations (procedures); (3) Monitoring of environmental impacts during mining operations; (4) Acquire historical data on environmental impacts of other steep slope mining activities; (5) Document recovery of mined area; (6) Comparative analyses of various sites to the Trace Creek site; and (7) Preparation of progress and final reports.  The proposed schedule is 24 months.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  Prepared by S. Jackson Hubbard,	
		DATE  3/6/75	
FOR OFFICE USE ONLY      EPA			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO.  1  PROJECT OFFICER S. Jackson Hubbard RESPONSIBLE ORGANIZATION (513)-684-4417 MERC-Cincinnati, Ohio 45268	
FUNDS OBLIGATED  \$70,000	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  1	STARTING DATE  5/1/75  ESTIMATED COMPLETION DATE  4/30/77




U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OAR No. 135-P-0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77-AAB</b>	
TITLE OF PROJECT "A Cooperative Program to Evaluate Surface and Ground Water Problems Associated with Potential Strip Mine Sites"			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Theodore T. Williams, Montana State University Robert D. Koob, North Dakota State University Paul A. Rechard, University of Wyoming			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Institute of Applied Research Montana State University Bozeman, Montana 59715			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The major objective of this project is to identify possible impacts of coal mining and development in the Northern Great Plains on the surface and ground water systems of the surrounding area. Specific objectives are: (1) obtain an equation of balance for all water inflow and outflow in each of three study sites, one each in Montana, North Dakota, and Wyoming; (2) characterize the overburden from a physical and chemical point of view as well as determine its relationship to the water coming to the surface; (3) characterize the chemical features of the mined sites; and (4) determine hydrologic character of spoils at active mine sites in Montana.</p> <p>The proposed work is a key effort in the EPA program to assess the surface and ground water problems associated with western coal.</p> <p>Three sites will be studied. The first phase of this work is the collection of base line data before mining. Some data will be collected at two active mining sites in Montana to provide data for the analysis.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		Prepared by S. J. Hubbard, EPA	
		DATE 5/6/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (In-house)		1	
<input type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER	
<input checked="" type="checkbox"/> RESEARCH GRANT		S. Jackson Hubbard	
		RESPONSIBLE ORGANIZATION	
		HERC - Cincinnati, Ohio (513) 684-4417	
FUNDS OBLIGATED		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
\$629,541		2	
F.Y.		STARTING DATE	
75		June 30, 1975	
		ESTIMATED COMPLETION DATE	
		June 29, 1978	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0061	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE 77-AAB	
TITLE OF PROJECT <b>Surface and Subsurface Water Quality Hydrology in Mine Spoils</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>David B. McWhorter, Agricultural Engineering Department</b>  <b>Rodney K. Skogerboe, Chemistry Department</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Colorado State University</b> <b>Fort Collins, Colorado 80521</b>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).          In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The objective of this project is to develop a mathematical model capable of predicting the quantity and quality of surface and subsurface runoff on surface mine spoils in the Rocky Mountain Region. This objective will be accomplished by modifying and interfacing existing models of subsurface chemical transport, certain geochemical reactions, overland flow on infiltrating surfaces, and sediment transport. A current study has identified the important physical and chemical characteristics of the spoils which must be included in the model. The adequacy of the model will be thoroughly tested on field plots located on coal mine spoils in Colorado.</p> <p>The model will be used to analyze and compare alternatives in mining and reclamation management. Among the alternatives to be investigated are the effects of selective placement of toxic spoils, topsoiling, surface manipulation to increase or decrease infiltration, and the effect of revegetation on pollution potential.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>Engineering and Natural Sciences</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <b>Prepared for Principal Investigation by John Martin, EPA</b>	
		DATE <b>August 6, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>2</b>	
<input type="checkbox"/> NEGOTIATED CONTRACT			
<input checked="" type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER <b>Eugene F. Harris (513)-684-4417</b>	
		RESPONSIBLE ORGANIZATION <b>EPA Extraction Technology Br., IERL Cincinnati</b>	
FUNDS OBLIGATED <b>\$150 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y. <b>0</b>	STARTING DATE <b>July 1, 1974</b>
		ESTIMATED COMPLETION DATE <b>June 30, 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 156-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77-AAB	
TITLE OF PROJECT "Effects of Surface Configuration in Water Pollution Control on Semi-arid Mined Lands"			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Richard L. Hodder, Project Leader I. B. Jensen, Principal Investigator			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Montana State University Bozeman, Montana 59715			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  1. Objectives of this study are to demonstrate the effectiveness of several surface configurations in: controlling erosion, runoff, sedimentation and pollution of adjacent drainages; quickly producing a desirable stabilizing vegetative cover; creating an equilibrium between precipitation absorbed and soil moisture evaporated and transpired so that ground water pollution will remain minimal; producing an overall desirable reclamation design providing effective drainage, esthetics productiveness and use. 2. The approach will utilize six demonstration sites in Montana, North Dakota, and Wyoming. Each site will be subjected to several similar treatments and evaluated by use of complete monitoring systems. 3. Current plans require 40 A tracts of new spoils at each of the designated sites to be shaped, surface manipulation treatments applied and seeded to a broad mixture of native and introduced forage species.  Key Words: reclamation, erosion control, sedimentation, water pollution, revegetation, surface manipulation, infiltration, leachate, ground water, runoff, hydrology, watershed			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  College of Agriculture		SIGNATURE OF PRINCIPAL INVESTIGATOR  I. B. Jensen	
		DATE  April 17, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO.  3	
		PROJECT OFFICER Elmore C. Grim 513-684-4417	
		EPA/NERC/Cincinnati, Ohio 45268	
FUNDS OBLIGATED  528,441	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  3	STARTING DATE  5/12/75
		ESTIMATED COMPLETION DATE  5/11/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 155-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)  SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<b>77-AAB</b>	
TITLE OF PROJECT <u>Potential Impacts to Ground-Water and Surface-Water Quality and Quantity from Proposed Energy Development on the Northern Cheyenne Reservation, Montana</u> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Robert Bailey, Director Northern Cheyenne Research Project			
NAME AND ADDRESS OF APPLICANT INSTITUTION Northern Cheyenne Tribal Council Lama Deer, Montana 59043			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The Northern Cheyenne Tribe, via the Northern Cheyenne Research Project, desires to develop an in-depth knowledge of the chemical and physical character of reservation water resources, and the interrelation of water to other resources, so that the tribe can make informed choices in planning coal development. A three-year study plan is proposed to: (1) gather and interpret baseline data concerning the water resources and the interrelationships of these data to land, biocommunity, supply needs, and energy resources of the reservation; (2) ascertain potential adverse chemical, physical, and economic impacts to reservation water resources from coal development; and (3) develop a comprehensive water resources management plan that will aid present and future planning for resource exploitation. Standard field and laboratory methodology will be employed in assessing the geology, surface water, and ground water of reservation lands. Professional help will be hired to direct field studies and assist in final report preparation.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  Robert Bailey	
		DATE  4/2/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		Elmore C. Grim, (513)-684-4417	
<input type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input checked="" type="checkbox"/> RESEARCH GRANT		NEEC-Cincinnati, Ohio /EPA	
FUNDS OBLIGATED  \$300 K		ESTIMATED COMPLETION DATE  5/30/78	
F.Y.  75		STARTING DATE  6/1/75	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  3		5	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	
		EPA	
77-AAB			
TITLE OF PROJECT <b>Evaluation of the Environmental Impacts of Western Surface Coal Mining</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
<b>L. Daniel Maxim, Vice President, Mathtech Division</b> <b>Frank Cook, Consultant, Mathtech Division</b> <b>Burton Becker, Vice President, Hittman Associates, Inc.</b> <b>Thomas Mills, Project Director, Hittman Associates, Inc.</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Mathematica, Inc.      P.O. Box 2392, Princeton, New Jersey 08540			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>1. Objectives</b></p> <p>a.) Assessment of the environmental damages that result from surface coal mining in the Western U.S.</p> <p>b.) Identification of new production and reclamation technologies whose use would reduce the magnitudes of those environmental damages.</p> <p><b>2. Approach</b></p> <p>Production and reclamation data will be gathered from literature surveys, interviews of interested parties, and field surveys of nine surface coal mines. The data will be synthesized and analyzed using mathematical models where appropriate.</p> <p><b>3. Progress</b></p> <p>Project just initiated.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
N/A			
		DATE	
		6/23/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		5	
		PROJECT OFFICER	
		P.B. Lederman	
		RESPONSIBLE ORGANIZATION	
		EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$200 K	75		6/75
			ESTIMATED COMPLETION DATE
			9/76

<b>NOTICE OF RESEARCH PROJECT</b>		<small>OMB No. 1501-0041</small> PROJECT NO. (Do not use this space) ASIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<b>77 AAB</b>	
TITLE OF PROJECT "An Evaluation of the Environmental Impact of the Existing Surface Mining Methods for Western Coal Mines"			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Mr. Frank W. Daniels			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Mathematica, Inc.; P.O. Box 2392; Princeton, NJ 08540			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>This project is specifically designed to evaluate the surface mining methods presently employed in the mining of the western coals in arid and semi-arid regions and to evaluate the effect these methods have on the environment.</p> <p>The purpose of this contract is to prepare for the Mining Pollution Control Branch a document which details the environmental damage which results from the mining methods currently being utilized. In addition, recommendations will be made on how these mining methods might be altered to reduce both short - and long-term damage.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <div style="text-align: center;">NA</div>		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;">Prepared by John F. Martin EPA</div>	
DATE <div style="text-align: center;">8/7/75</div>			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Institutional) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <div style="text-align: center;">5</div>	
PROJECT OFFICER S. Jackson Hubbard (513)-684-4417		RESPONSIBLE ORGANIZATION Extraction Technology Br., IERL - Conti.	
FUNDS OBLIGATED <div style="text-align: center;">\$173 K</div>	F.Y. <div style="text-align: center;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <div style="text-align: center;">0</div>	STARTING DATE <div style="text-align: center;">6/30/75</div>
ESTIMATED COMPLETION DATE <div style="text-align: center;">9/29/76</div>			

## NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

EPA

77-AAC

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

TITLE OF PROJECT Field and Laboratory Methods Applicable  
to Overburdens and MinesoilsGIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER  
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.Richard Meriwether Smith, Professor of Agronomy,  
Division of Plant Sciences, West Virginia University

NAME AND ADDRESS OF APPLICANT INSTITUTION

College of Agriculture and Forestry  
West Virginia University  
Morgantown, West Virginia 26506

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).

In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

It is proposed to write a manual of step-by-step procedures by which mine operators, laboratory analysts, consultants, and State and Federal agencies and land owners can determine properties of overburdens and minesoils needed to assure soil and water quality.

The procedures will include field identification of common rocks and minerals; field sampling techniques; packing, transport, and processing of rock and soil samples; chemical, mineralogical and physical analyses; and interpretation of analytical results into field recommendations. These recommendations will be designed to aid preplanning of the total surface mining operation including post-mining reclamation and long-range land use, insofar as these are influenced by the character of the rock and soil overlying the coal seam. The manual will support the concept of controlled segregation and placement of overburden during surface mining to assure soil and water quality.

Terms used in the manual will be defined and will be an important part of this project. Such standardization would greatly benefit communication between the multiple disciplines involved.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

College of Agriculture and Forestry

SIGNATURE OF PRINCIPAL INVESTIGATOR

Elmore C. Grim

DATE

12/16/74

Prepared by Elmore C. Grim, EPA

12/16/74

## FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

AGENCY STAFF (Intramural)

NEGOTIATED CONTRACT

X RESEARCH GRANT

TASK NO.

1

PROJECT OFFICER

Elmore C. Grim

RESPONSIBLE ORGANIZATION

NRC-Cincinnati, Ohio

(513)-684-4417

45268

FUNDS OBLIGATED

F.Y.

NO. OF FUTURE YEARS TENTATIVELY  
ASSURED BEYOND CURRENT F.Y.

STARTING DATE

ESTIMATED COMPLETION  
DATE

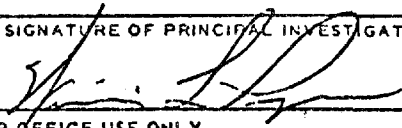
\$99,860

75

0

2/15/75

2/14/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-F0681	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	EPA
TITLE OF PROJECT		77-AAC	
New Mining Technology to Minimize Environmental Disturbance			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Ben E. Lusk -- Project Manager			
William L. Piper -- Project Engineer			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
West Virginia Surface Mining and Reclamation Association 1624 Kanawha Boulevard, East, Charleston, West Virginia 25311			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The new surface mining method called "longwall stripping" is a technique that could have applications in the State of West Virginia and other mining areas of the country. This mining method employs underground mining technology, called longwall mining, in areas that are often surface strip mined or auger mined. By utilizing a continuously advancing 250 ft. "face" that runs perpendicular to the coal outcrop the coal can be removed without leaving the coal "ribs" left by augers and without overturning the entire earth surface as when strip mined. This is particularly advantageous in very steep slope mining conditions. Additionally, while not a part of this demonstration project, it is possible that this mining could be accomplished without men at the "face" if technology similar to that available in Europe is further developed for U. S. conditions.</p> <p>In demonstrating this new technology, "longwall stripping", the Association would expect to prove that surface coal mining can effectively and efficiently be balanced with a "clean environment."</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
Engineering			
		DATE	
		April 11, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		3	
<input type="checkbox"/> NEGOTIATED CONTRACT			
<input checked="" type="checkbox"/> RESEARCH GRANT			
PROJECT OFFICER		RESPONSIBLE ORGANIZATION	
S. Jackson Hubbard		EPA	
STARTING DATE		ESTIMATED COMPLETION DATE	
7/23/73		7/22/78	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
\$635,000	76	2	

U.S. ENVIRONMENT PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	
		EPA	
77AAC/05			
TITLE OF PROJECT "Manual of Practice to Control Sediment and Erosion During Mining"			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Environmental and Geosciences Division - Burton Becker, Vice President; Thomas Mills, Program Manager; Michael Clar, Project Engineer; Pete Hartman, Task Leader; Robert Kautzman, Task Leader.			
NAME AND ADDRESS OF APPLICANT INSTITUTION Hittman Associates, Inc. 9190 Red Branch Road Columbia, Maryland 21045			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The primary objective of the proposed study is to develop a comprehensive, practical manual of practice for controlling sediment from surface mining operations in the eastern portion of the United States. The manual will summarize the state-of-the-art of sediment control and provide functional guidelines for planning, implementing, monitoring and maintaining effective control practices and procedures for various types of surface mining operations and different mining activities throughout the geographical area of interest. This effort will be accomplished in the following steps: assemble written information, conduct inspections and interviews, analyze and evaluate information, identify state-of-the-art control technology and industry needs, develop control strategy, finalize plan and prepare manual of practice.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>Burton C. Becker</i>	
		DATE 6/18/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		05	
<input type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER Elmore C. Grim	
		RESPONSIBLE ORGANIZATION Mining Branch - Cincinnati	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
128,100	75	0	6-10-75
			ESTIMATED COMPLETION DATE 5-10-75

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>77-AAC</b>	
TITLE OF PROJECT <b>Manual of Practice for Premining Planning Eastern Surface Coal Mining</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
R. V. Ramani Associate Professor of Mining Engineering Department of Mineral Engineering		L. W. Superstein Associate Professor of Mining Engineering Department of Mineral Engineering	
(See also attached sheet)			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>The Pennsylvania State University University Park, PA 16802</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The manual of practice will set out the rationale in pre-mining site evaluation so that mining and reclamation will be done in a manner so as to not only comply with existing and proposed state and federal mining programs but ensure minimal environmental damages. The site evaluation will include the evaluation of the soil and rock properties, surface and ground water resources, physical and cultural features, and methods of mining and reclamation. It will consider the geological and hydrological setting prior to mining as the basic inputs to the pre-mining planning. The manual of practice will provide guidelines and means of assessing alternatives in the areas of water management, land use planning, and surface mine engineering, and will be mostly based on information gained from literature review and critical evaluation of methods as reported in the literature and applied in the field. The M.O.P. shall recommend methods, techniques and alternatives for selecting and designing mining systems to achieve soil handling and storage, and overburden handling, segregation and disposal. It will be presented in an orderly and concise manner. Liberal use of charts, maps, graphs, diagrams and photographs will be made to substantiate the description.</p> <p>The Manual of Practice (M.O.P.) will be designed to assist mine operators and control personnel in developing, evaluating and selecting mining and reclamation plans that will be least detrimental to the environment, prior to the commencement of mining.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>College of Earth &amp; Mineral Sciences</b>			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input type="checkbox"/> NEGOTIATED CONTRACT		<b>6</b>	
<input checked="" type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>Elmore C. Grim</b>	
		RESPONSIBLE ORGANIZATION <b>EPA</b>	
		<b>NERC-Cincinnati, Ohio 45268 (513) 601</b>	
FUNDS OBLIGATED <b>\$150 K</b>		F.Y. <b>75</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>		STARTING DATE <b>July 1, 1975</b>	
		ESTIMATED COMPLETION DATE <b>June 30, 1977</b>	

ENVIRONMENTAL PROTECTION AGENCY  <b>NOTICE OF RESEARCH PROJECT</b>  FILED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<i>Form Approved</i> OMB No. 155-00-001 PROJECT NO. (Do not use this space) ENE EPZ <b>77-AAD</b>	
TITLE OF PROJECT <b>"Water Quality Hydrology Affected by Oil Shale Development"</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;"> <b>Dr. David B. McWhorter, Assistant Professor</b>  <b>Department of Agricultural Engineering</b> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <div style="text-align: center;"> <b>Colorado State University</b>  <b>Fort Collins, CO 80523</b> </div>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The development of oil shale deposits, as a viable energy source, has the potential for significantly influencing the water quality hydrology of both the Upper and lower Colorado River Basins. The specific objectives of the proposed project are:</p> <ol style="list-style-type: none"> <li>1. To gather all available data pertinent to the present future assessment of the water quality hydrology in the oil shale regions of the Upper Basin.</li> <li>2. To summarize these data toward the identification of deficiencies.</li> <li>3. To develop and verify procedures for quantitative assessment of water quality.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>Agricultural Engineering</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Prepared by John Martin, EPA</b>	
		DATE  <b>8/8/75</b>	
FOR OFFICE USE ONLY			
EFFORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> DISCONTINUED CONTRACT <input checked="" type="checkbox"/> EXTERNAL CONTRACT		TASK NO.  <div style="text-align: center;"><b>1</b></div>	
		PROJECT OFFICER <b>Eugene F. Harris (513)-684-4417</b> RESPONSIBLE ORGANIZATION <b>EPA</b> <b>Extraction Technology Branch, IERL Cincinnati</b>	
TOTAL COST <b>\$108 K</b>	FUNDING AGENCY <b>75</b>	NO. OF MONTHS OF RESEARCH ACTIVITIES ASSURED BEYOND CURRENT FISCAL YEAR <div style="text-align: center;"><b>1</b></div>	STARTING DATE <b>6/15/75</b>  ESTIMATED COMPLETION DATE <b>6/14/77</b>

## NOTICE OF RESEARCH PROJECT

PROJECT NO. (do not use this space)

SSIF

EPA

77-AAD

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

## TITLE OF PROJECT

"Vegetative Stabilization of Paraho Spent Oil Shale"

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

William A. Berg  
Associate Professor of Agronomy (Soils)  
Agronomy Department

## NAME AND ADDRESS OF APPLICANT INSTITUTION

Colorado State University  
Fort Collins, Colorado 80521

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).  
In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The study will attempt to duplicate on a very small scale what might be disposal schemes for the Paraho spent shale. It will investigate surface stability and salt movement in spent Paraho oil shale after a cover of vegetation has been established. Measurements of vegetation including frequency, density and ground cover will be made. Spent shale will be compacted to an optimum density for pile stability and to minimize percolation through the pile. A cover of soil or uncompacted spent shale will be placed over the compacted piles.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.)

College of Agriculture

SIGNATURE OF PRINCIPAL INVESTIGATOR

Prepared by John F. Martin, EPA

DATE

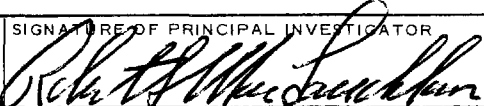
8/8/75

## FOR OFFICE USE ONLY

REPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER
AGENCY STAFF (Intramural)	2	Eugene F. Harris (513)-684-4417
NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION EPA
GRANT		Extraction Technology Branch, IEPL-Cincinnati
ESTIMATED COST	NO. OF FUTURE YEARS TENTATIVELY ASSUMED BEYOND CURRENT F.Y.	STARTING DATE
\$94 K	2	7/15/75
75		7/14/78



ENVIRONMENTAL PROTECTION AGENCY  <b>NOTICE OF RESEARCH PROJECT</b>  PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<i>Form Approved</i> OMB No. 158-R-31 PROJECT NO. (If not use this space) 77-AAD	
TITLE OF PROJECT <p style="text-align: center;"><b>Vegetation Stabilization of Spent Oil Shales</b></p>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <p style="text-align: center;"> <b>William A. Berg</b>  <b>Associate Professor of Agronomy (Soils)</b>  <b>Agronomy Department</b> </p>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <p style="text-align: center;"> <b>Colorado State University</b>  <b>Fort Collins, Colorado 80521</b> </p>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>Objective.</b> To investigate surface stability and salt movement in spent oil shales and soil-covered spent shales after a cover of native vegetation has been established by intensive treatments and then left under natural precipitation conditions.</p> <p><b>Approach.</b> The study is being carried out on two different spent oil shales. "Soil" treatments are plant establishment on 1. directly on leached and fertilized spent shales; 2. six inches of soil over leached spent shale; 3. one foot of soil over unleached spent shale; 4. soil. Plots have been established on 25 percent north and south slopes at altitudes of 5700 and 7200 feet in or near the Piceance Basin and Northwestern Colorado. Each plot (28 per site) is bordered with wood to form individual runoff plots 11 feet wide and 22 feet long. Sediment and runoff catchments have yet to be installed. One site (5700') has been instrumented for soil salinity and soil moisture measurements.</p> <p>A cover of native plant species has been established on the lower altitude site and will be established on the higher site. Measurements on vegetation include frequency, density and vegetative ground cover.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>Agricultural Sciences</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <b>William A. Berg</b>	
		DATE <b>8/8/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intracanal) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> OTHER		TASK NO. <p style="text-align: center;"><b>2</b></p>	
		PROJECT OFFICER <b>Eugene F. Harris</b> (513)-684-4417 RESPONSIBLE ORGANIZATION <b>EPA</b> <b>Extraction Technology Branch, JERL Cincinnati</b>	
ESTIMATED COST <b>\$15 K</b>	NUMBER OF YEARS REPRESENTATIVE <b>75</b>	STARTING DATE <b>8/21/75</b>	ESTIMATED COMPLETION DATE <b>8/20/76</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-1AG-D5-E756-EE	
TITLE OF PROJECT <b>Plant materials studies to improve technologies for the reclamation of surface mined lands</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Coordinate plant materials studies being accelerated at nine SCS plant materials centers. All work is coordinated by the agencies' plant materials specialists at technical service centers. These are: W. Curtis Sharp, SCS, 1974 Sproul Road, Broomall, Pennsylvania 19008, (215) 353-1480; Ashley A. Thornburg, SCS, Federal Bldg., Lincoln, Nebraska 68508, (403) 471-5349; (see attached sheet)			
NAME AND ADDRESS OF APPLICANT INSTITUTION U.S. Department of Agriculture 14th & Independence Avenue, S.W. Washington, D.C. 20250			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<ol style="list-style-type: none"> <li>1. To assemble, analyze, summarize and prepare a report on plant materials activities relative to the reclamation of surface mined lands which will contribute to a jointly prepared USDA technical handbook on revegetation surface mined lands and spoils in the Eastern Coal Mining Region.</li> <li>2. To accelerate plant materials work with special emphasis in the Western Mining Region (arid and semi-arid) to:               <ol style="list-style-type: none"> <li>a. Determine plants best suited for mine spoil reclamation under wide range of site conditions.</li> <li>b. Develop techniques for the successful establishment and survival of plants for erosion control and mireland reclamation.</li> <li>c. Determine the modification of equipment for seed collection and processing and for planting disturbed lands.</li> <li>d. Propagate and provide for the commercial increase and dissemination of seed and other plant materials for mine spoil reclamation.</li> </ol> </li> <li>3. Jointly, with the Forest Service, Cooperative State Research Service, Economic Research Service, and Agricultural Research Service, develop a USDA technical handbook including above items 2a, b, c, and d.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  NA		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE 7/30/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 1-3 PROJECT OFFICER Robert S. MacLauchlan RESPONSIBLE ORGANIZATION Plant Sciences Division USDA-Soil Conservation Service	
FUNDS OBLIGATED \$200	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. Four, contingent on additional funding	STARTING DATE July 1, 1975 ESTIMATED COMPLETION DATE June 30, 1980

Cont'd

Arnold G. Davis, SCS, P.O. Box 6567, Fort Worth, Texas 76115, (817) 334-5408; and S. H. Fuchs, SCS, Federal Bldg., 511 N.W. Broadway, Portland, Oregon 97209, (503) 221-2341.

NOTICE OF RESEARCH PROJECT  PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		OMB No. 155-00021 PROJECT NO. (Do not use this space) SSIE EPA <b>77-AAE</b>	
TITLE OF PROJECT <b>Evaluation of Reverse Osmosis Processes Utilized for Treatment of Acid Mine Drainage</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>G. Lansing Blackshaw, Dept. of Chemical Engineering, Professor &amp; Principal Investigator</b> <b>Alfred W. Pappano, Dept. of Chemical Engineering, Assistant Professor and</b> <b>Co-Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>West Virginia University</b> <b>Morgantown, West Virginia 26506</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <p>The object of the research is to provide a definitive state-of-the-art report concerning the technical and economic feasibility of utilizing reverse osmosis (RO) based techniques in the treatment of both ferrous and ferric acid mine drainage originating in coal mining operations.</p> <p>Information will be gathered from the work of previous investigators, treatment plant operating experiences, industrial producers of RO and other acid mine drainage treatment equipment, and RO process synthesis research to be conducted by the WVU investigators at the EPA Crown Mine Drainage Control Field Site (Crown, WV). Studies to be performed at Crown consist of lime, soda ash, and lime-soda ash neutralization utilizing a 60,000 gallon per day RO unit. Also included will be investigations of two stage RO processing using both 60,000 and 4,000 gallon per day RO units, coupled ion exchange-RO processes, and lime-soda softening of acid mine drainage as a pretreatment step to RO processing. All data from these studies will be factored into the report as required to present a complete accounting of RO process potential for AMD treatment.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>College of Engineering</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>G. Lansing Blackshaw</i>	
		DATE <b>12/31/74</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO. <b>5</b>	
		PROJECT OFFICER <b>Robert B. Scott 304/296-3496</b>	
		RESPONSIBLE ORGANIZATION <b>NERC-Cincinnati, INTRL / EPA</b>	
FUNDS OBLIGATED <b>\$174,766</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>6/30/75</b>
		ESTIMATED COMPLETION DATE <b>12/31/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <div style="text-align: center; font-size: 1.2em;">77-AAF</div>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Study of Pollution Control Technology for Offshore Oil Drilling and Production Platforms</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Principal Investigator: Dr. Steven M. Fruh</b> <b>Group Head, Environmental Systems</b> <b>Exxon Research and Engineering Company</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Exxon Research and Engineering Company</b> <b>P. O. Box 8</b> <b>Linden, New Jersey 07036</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>This project will determine how to minimize water polluting discharges from offshore oil drilling and production platforms by the most practicable use of current technology of wastefluid management and pollution control equipment. The Contractor shall define, design features of unit processes, equipment and hardware - including pertinent aspects of human factors engineering - and operation and maintenance procedures which should be practiced or avoided from the standpoint of minimization of pollutants in operational discharges. These definitions shall be accomplished by means of a field survey involving sampling, analysis, waste characterization and observation of operation and maintenance procedures. The results of the analyses and observations will be compiled to provide a pollution minimization rationale that can be used for future platform unit process design as well as for upgrading the performance of existing equipment.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>Gulf Universities Research Consortium</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <b>Dr. Steven M. Fruh</b>	DATE <b>August 12, 1975</b>
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>Frank J. Freestone</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION EPA	
<input type="checkbox"/> RESEARCH GRANT		<b>Oil &amp; Hazardous Materials Spills Sub-Program</b>	
FUNDS OBLIGATED <b>\$970,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>7-1-75</b>
			ESTIMATED COMPLETION DATE <b>9-30-77</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 152-R0091	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>77-AAG</b>	
<b>TITLE OF PROJECT</b> Compilation of Cold-Climate Oil-Spill Research and Technology Pertaining to Alaskan Shore-			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER <span style="float: right;">lines</span> PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Principal Investigator: Dr. J. D. McKendrick Assistant Professor Institute of Agricultural Sciences			
<b>NAME AND ADDRESS OF APPLICANT INSTITUTION</b> Institute of Agricultural Sciences University of Alaska Palmer, Alaska			
<b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b> In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>This grant will assess the adequacy of available methods and techniques for preventing damage from oil spills to coastal and inland shorelines, including dry riverbeds, and for restoring oil spill damaged areas to as near original condition as possible. These methods will be documented in the form of a prevention, cleanup and restoration manual for areas of likely spills. Gaps in available control technology will be identified and objectives and priorities for needed R&amp;D will be determined.</p> <p>Assembling the pertinent data will involve several collection techniques. Additionally, a literature search will be performed to establish the current state-of-the-art. Visits will be made to sites where oil spills, both intentional and accidental, have occurred. All pertinent information concerning the protection and restoration techniques attempted at these sites will be obtained. The field of investigation will include both Alaskan and Canadian territories.</p>			
<b>IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)</b> Institute of Agricultural Sciences		<b>SIGNATURE OF PRINCIPAL INVESTIGATOR</b> Dr. Jay D. McKendrick	
		<b>DATE</b> 5/28/75	
<b>FOR OFFICE USE ONLY</b>			
<b>SUPPORT METHOD (Check one)</b> <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		<b>TASK NO.</b> 1	
		<b>PROJECT OFFICER</b> John S. Farlow	
		<b>RESPONSIBLE ORGANIZATION</b> EPA	
		Oil Spill Technology Branch, IWTCL	
<b>FUNDS OBLIGATED</b> \$115,000	<b>F.Y.</b> 75	<b>NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.</b> 0	<b>STARTING DATE</b> 7/1/75
		<b>ESTIMATED COMPLETION DATE</b> 6/30/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-RC081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space) SSIE E.	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77-ACF	
TITLE OF PROJECT "Establishment of Criteria to Locate and Define Sources and Quantities of Water that will Ultimately Enter a Mine" GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Mr. John Regan			
NAME AND ADDRESS OF APPLICANT INSTITUTION  E. D'Appolonia Consulting Engineers, Inc. 10 Duff Rd.; Pittsburgh, PA 15235			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies sup- porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The project is to establish criteria to locate sources and define the quantities of water that will enter underground coal mines through faults, fractures, etc. A manual will be prepared explaining the procedures for the use of applicable methods for the underground coal mines of the eastern United States. The criteria obtained will enable mining companies to plan water diversions and dewatering procedures that will reduce or eliminate polluted mine water discharges. State and Federal regulatory agencies will be able to use the criteria in reviewing mining applications for potential infiltration problems and as an aid in requiring procedures requiring water diversion or dewatering to prevent discharges of pollutants.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  NA		SIGNATURE OF PRINCIPAL INVESTIGATOR  Prepared by John F. Martin, EPA	
		DATE  8/7/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  1	
		PROJECT OFFICER S. Jackson Hubbard (513)-684-4417 RESPONSIBLE ORGANIZATION EPA Extraction Technology Branch, IERL - Cinti.	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$240 K	75	0	6/30/75
			ESTIMATED COMPLETION DATE
			9/30/76

## NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77-ACF

TITLE OF PROJECT Evaluation of the Long-term Environmental Effectiveness of close-down  
Procedures-Eastern Underground MinesGIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER  
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Dr. R. W. Stinglin

NAME AND ADDRESS OF APPLICANT INSTITUTION

HRB Singer, Inc.; P.O. Box 60; State College, PA 16801

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).  
In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies sup-  
porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

This project will provide information concerning the mine sealing techniques currently in use in the Eastern U.S. The work will consider drainage from the mines, mine methods involved, length of closure, and the characteristics of the seam mined. A survey of approximately 50 underground mines is anticipated.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical,  
dental, etc.)

NA

SIGNATURE OF PRINCIPAL INVESTIGATOR

Prepared by John Martin, EPA

DATE

8/7/75

## FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

AGENCY STAFF (Intramural)

☒ NEGOTIATED CONTRACT

RESEARCH GRANT

TASK NO.

3

PROJECT OFFICER

Robert B. Scott (304)-296-3496

RESPONSIBLE ORGANIZATION

EPA  
Extraction Technology Br., IERL-Cincinnati

FUNDS OBLIGATED

\$144 K

F.Y.

75

NO. OF FUTURE YEARS TENTATIVELY  
ASSURED BEYOND CURRENT F.Y.

0

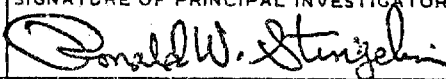
STARTING DATE


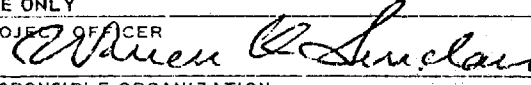
6/10/75


ESTIMATED COMPLETION  
DATE

7/10/76



U.S. ENVIRONMENTAL PROTECTION AGENCY  <b>NOTICE OF RESEARCH PROJECT</b>		Form Approved OMB No. 158-R0081	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		PROJECT NO. (Do not use this space) SSIE EPA 77-ACF	
TITLE OF PROJECT <b>Evaluation of the Long Term Environmental Effectiveness of Close Down Procedures-</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Eastern Underground Coal Mines.</b>  <b>Dr. Ronald W. Stingelin, Principal Geologist, Department of Environmental and Social Analysis (Principal Investigator)</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>HRB-Singer, Inc., P. O. Box 60 Science Park, State College, Pa. 16801</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The objective of this study is to provide an overview of the long-term environmental effectiveness of eastern underground coal mine close-down procedures. Following a thorough review of existing literature, a site selection will be made of approximately 65 underground mines in the eastern United States. Existing data will be collected on the past and present history of these sites. A field sampling program of mine drainage quality and quantity will then be used to ascertain the effectiveness of various past and present mine closure methods. The factors to which effectiveness or ineffectiveness of closure methods are attributable will be arrived at through an extensive multivariate statistical analysis. Recommendations of areas of research needed to develop more advanced mine closure technology or alternative solutions to mine closure will be made.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR 	
		DATE <b>6/26/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		3	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER <b>P.B. Lederman</b>	
		RESPONSIBLE ORGANIZATION <b>EPA</b>	
FUNDS OBLIGATED <b>\$200 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>6/75</b>
			ESTIMATED COMPLETION DATE <b>6/77</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E681-AF	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>ENVIRONMENTAL CONTROL TECHNOLOGY SURVEY ON SELECTED U.S. STRIP MINING SITES</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Ralph P. Carter - Director, Coal Extraction and Reclamation Programs, EES Donald O. Johnson - Coal Geologist, Energy and Environmental Systems Division Allen O. Perry - Geological Engineer - Energy and Environmental Systems Division Jeffrey P. Schubert - Groundwater Geologist - Energy and Environmental Systems Division			
NAME AND ADDRESS OF APPLICANT INSTITUTION Argonne National Laboratory, Energy and Environmental Systems Division 9700 South Cass Avenue Argonne, Illinois 60439			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <u>Objectives</u> - A report on the alternative technologies showing promise for the control of effluents and wastes from strip mining operations in the Eastern United States through the next 20 years. This report will include the survey of existing and likely future sites for such activities, the projection of the activities, the technology involved, the volumes and characteristics of the wastes and effluents, and the potential environmental impacts of these volumes. Based on statistical correlation between sites, environmental control practices, and the effectiveness of those practices, alternative technologies for type sites will be delineated.  <u>Approach</u> - 1. Identify types of sites, including individual site surveys and grouping by key parameters, in central and eastern coal provinces (east of 100 degree M). 2. Prepare projections for the next 20 years of: a) mining areas, b) extraction and processing practices, c) volumes and characteristics of effluents and wastes, and d) potential environmental impacts. 3. Identify generic environmental control problems. 4. Catalog environmental control practices by site type, including description of the practices and delineation of their effectiveness. 5. Prepare a statistical and descriptive correlation between the sites, the ECT practices, and the effectiveness of those practices. 6. Identify alternative environmental control technologies by both environmental and economic incentives for the several type sites.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) -----		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE September 9, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  1&2  PROJECT OFFICER  RESPONSIBLE ORGANIZATION Argonne National Laboratory ERDA	
FUNDS OBLIGATED  300 K	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE  ESTIMATED COMPLETION DATE 7/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-IAG-D5-E756-EE	
TITLE OF PROJECT <b>Plant materials studies to improve technologies for the reclamation of surface mined lands</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Coordinated plant materials studies being accelerated at nine SCS plant materials centers. All work is coordinated by the agencies' plant materials specialists at technical service centers. These are: W. Curtis Sharp, SCS, 1974 Sproul Road, Broomall, Pennsylvania 19008, (215) 353-1480; Ashley A. Thornburg SCS, Federal Bldg., Lincoln, Nebraska 68505, (402) 471-5349; (see attached sheet)			
NAME AND ADDRESS OF APPLICANT INSTITUTION U.S. Department of Agriculture 14th & Independence Avenue, S.W. Washington, D.C. 20250			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<ol style="list-style-type: none"> <li>1. To assemble, analyze, summarize and prepare a report on plant materials activities relative to the reclamation of surface mined lands which will contribute to a jointly prepared USDA technical handbook on revegetating surface mined lands and spoils in the Eastern Coal Mining Region.</li> <li>2. To accelerate plant materials work with special emphasis in the Western Mining Region (arid and semi-arid) to: <ol style="list-style-type: none"> <li>a. Determine plants best suited for mine spoil reclamation under wide range of site conditions.</li> <li>b. Develop techniques for the successful establishment and survival of plants for erosion control and mine land reclamation.</li> <li>c. Determine the modification of equipment for seed collection and processing and for planting disturbed lands.</li> <li>d. Propagate and provide for the commercial increase and dissemination of seed and other plant materials for mine spoil reclamation.</li> </ol> </li> <li>3. Jointly, with the Forest Service, Cooperative State Research Service, Economic Research Service, and Agricultural Research Service, develop a USDA technical handbook including above items 2a, b, c, and d.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  NA		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE 7/30/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  1+2	
PROJECT OFFICER Robert S. MacLauchlan		RESPONSIBLE ORGANIZATION Plant Sciences Division USDA-Soil Conservation Service	
FUNDS OBLIGATED \$200K	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. Four, contingent on additional funding	STARTING DATE July 1, 1975
		ESTIMATED COMPLETION DATE June 30, 1980	

Cont'd

Arnold G. Davis, SCS, P.O. Box 6567, Fort Worth, Texas 76115, (817) 334-5408; and S. H. Fuchs, SCS, Federal Bldg., 511 N.W. Broadway, Portland, Oregon 97209, (503) 221-2841.

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE E	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		IAG-D5-E764-EF	
TITLE OF PROJECT <b>Technologies for controlling adverse effects of mining on forest, range, and related freshwater ecosystems.</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Coordinated studies by Forest Service research scientists underway at several locations in the Northern Great Plains and Southwest U.S.A. being conducted by: Director, Rocky Mountain Forest and Range Experiment Station, 240 West Prospect Street, Fort Collins, Colorado 80521; Director, Intermountain Forest and Range Experiment Station, 507 25th Street, Ogden, Utah 84401; Dir., Forest Environ. Research Staff, 12th &amp; Independence Ave SE, Washington, D. C. 20250</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>U.S. Department of Agriculture          12th and Independence Avenue, S.W.          Washington, D.C. 20250</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<ol style="list-style-type: none"> <li>1. Develop guidelines and criteria for overburden drilling, analysis, and placement as related to growth supporting media.</li> <li>2. Prepare technical handbook on revegetation methods for mined lands in Eastern U.S., including recommendations for new research.</li> <li>3. Develop guidelines and criteria for the use of non-mine wastes as soil amendments on coal and oil shale spoils.</li> <li>4. Develop recommendations, guidelines, and criteria, based on new research, for revegetation following coal and oil shale mining.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <div style="text-align: center;">N/A</div>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center;">DATE</div>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <div style="text-align: center; font-weight: bold;">1-4</div> PROJECT OFFICER <b>R. Z. Callahan</b> <i>[Signature]</i> RESPONSIBLE ORGANIZATION <b>Forest Environment Research, Forest Service, USDA</b>	
FUNDS OBLIGATED <b>\$680 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>6/76</b> ESTIMATED COMPLETION DATE <b>6/80</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-IAG-D5-E763-EH	
TITLE OF PROJECT <b>Revegetation and reclamation of land areas disturbed by mining</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  List attached.			
NAME AND ADDRESS OF APPLICANT INSTITUTION Agricultural Research Service U.S. Department of Agriculture Washington, D.C.			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>1. Develop methods for utilization of waste material in revegetation and reclamation of strip mine lands. Approach - Emphasis will be given to the effect of various waste materials on water quality, reclamation efficiency, and plant growth and quality.</p> <p>2. To develop methods for control of instability on mined lands. Approach - Studies will be conducted to develop regrading, amendment incorporation, and revegetation practices to alleviate the instability.</p> <p>3. To develop methods for stabilizing and restoring areas disturbed through oil shale and coal mining. Approach - Research will include studies on grade stabilizers, small dams, and detention basins to provide water for irrigating selected areas for more intensive forage production.</p> <p>4. To develop methods for restoring and maintaining a favorable soil organic matter component in reclaimed strip mine areas. Approach - Determine the physical and chemical conditions required and methods for restoring desirable microbial activity. Special emphasis will be placed on <u>Rhizobium</u> species and the growth and nitrogen fixation ability of legumes.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  NA		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>H. L. Barrows</i>	
		DATE  <i>Aug. 6, 1975</i>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		1, 2, 3, 4	<b>H. L. Barrows</b>
<input type="checkbox"/> NEGOTIATED CONTRACT			RESPONSIBLE ORGANIZATION
<input type="checkbox"/> RESEARCH GRANT			<b>Agricultural Research Service, USDA</b>
FUNDS OBLIGATED  \$595 K	F.Y.  1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  4	STARTING DATE  June 1975
			ESTIMATED COMPLETION DATE  December 1979

Dr. O. L. Bennett  
Agronomy Department  
West Virginia University  
Morgantown, West Virginia 26506  
Phone: 304-293-2793

Dr. J. F. Power  
Northern Great Plains Research Center, ARS, USDA  
P. O. Box 459  
Mandan, North Dakota 58554  
Phone: 701-663-6448

Mr. W. H. Armiger  
Biological Waste Management Laboratory, ARS, USDA  
Agricultural Research Center  
Beltsville, Maryland 20705  
Phone: 301-344-3184

Mr. J. N. Jones  
Agronomy Department  
Virginia Polytechnic Institute  
Blacksburg, Virginia 24061  
Phone: 703-951-6812

Dr. D. A. Woolhiser  
Engineering Research Center  
CSU Foothills Campus  
Fort Collins, Colorado 80523  
Phone: 303-491-8511

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA- <b>IAG-D5-E681-EJ</b>	
TITLE OF PROJECT <b>TRACE ELEMENT CHARACTERIZATION AND REMOVAL/RECOVERY FROM RAW COAL AND COAL PROCESSING WASTES</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="margin-left: 40px;"> LASL PROJECT DIRECTOR: R. D. Baker, CMB Division Leader  PRINCIPAL INVESTIGATOR: E. M. Wewerka, Staff Member </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <div style="margin-left: 40px;"> LOS ALAMOS SCIENTIFIC LABORATORY  UNIVERSITY OF CALIFORNIA, LOS ALAMOS, NM 87545 </div>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The program objectives are to characterize the chemistry of trace elements in coal and coal cleaning wastes and to conduct laboratory scale evaluations of new physical/chemical processes for removal and recovery of trace elements which are potentially detrimental to the environment. Characterization studies include the composition and mineralogy of inorganic phases and the chemistry of trace elements bonded to the coal structure itself. Laboratory process evaluation studies will apply what has been learned about the chemistry of trace elements to new processes, add-on processes or modifications of existing processes for coal cleaning to optimize removal/recovery of selected trace elements.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center; font-family: cursive;">E.M. Wewerka</div>	
		DATE <div style="text-align: center;">1/27/76</div>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <div style="text-align: center;">Frank K. Pittman</div>	
<input type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<div style="text-align: center;">ERDA</div>	
FUNDS OBLIGATED <div style="text-align: center;">\$300 K</div>	F.Y. <div style="text-align: center;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <div style="text-align: center;">5/75</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center;">5/76</div>	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		IAG D5-E762-EP thru ES	
TITLE OF PROJECT <b>Technology for Reclamation and Use of Mine Spoils</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>See Attached List</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Cooperative State Research Service US Department of Agriculture, Washington, D. C.</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <ol style="list-style-type: none"> <li>1. To develop systems of classification of minespoils and to develop plans for post-mining redeposition, stabilization, and revegetation with trees in Eastern region.</li> <li>2. To work out systems of deposition of overburden strata concurrently with mining including use of topsoil and soil amendments at the surface.</li> <li>3. To improve diagnostic tests for potential acidity in coal spoils and to devise reclamation methods and use of horticultural crops on reclaimed areas.</li> <li>4. To work out soil and water management including temporary irrigation for revegetation of mined lands in arid and semi-arid regions</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>See Attached Sheet</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>E.V. Miller</i>	
		DATE <i>Aug. 15, 1975</i>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO. <b>1, 2, 3, 4</b> PROJECT OFFICER <b>S. Aldrich, W. Thomas,</b> <b>O. Little, L. Wilson</b> RESPONSIBLE ORGANIZATION <b>USDA/ CSRS</b>	
FUNDS OBLIGATED <b>\$495,000</b>	F.Y. <b>1975</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>4</b>	STARTING DATE <b>June 1975</b>
		ESTIMATED COMPLETION DATE <b>December 1979</b>	

(Attachment 1.)

Names, Departments, and Official Titles of Principal Investigators or Project Directors and All Other Professional Personnel Engaged in The Project

Studies will be coordinated regionally by Project Directors:

Northeast Region (Pa, W. Va.)	W. I. Thomas, Associate Director Pennsylvania Agricultural Exp. Sta.
North Central Region ( O. )	S. R. Aldrich, Assistant Director Illinois Agricultural Exp. Sta.
Southern Region (Va., Ky)	C. O. Little, Associate Director Kentucky, Agricultural Exp. Sta.
Western Region (Ariz. N.M., Utah)	M. L. Wilson, Associate Director New Mexico Agricultural Exp. Sta.

Identify Professional School Involved (Medical, Dental, etc.)

Penn State University  
University of West Virginia  
Ohio State University  
Virginia Polytechnic Institute  
University of Kentucky  
University of Arizona  
N. M. State University  
Utah State University

# **PHYSICAL AND CHEMICAL COAL CLEANING**

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77 AAK</b>	
TITLE OF PROJECT <b>Environmental Assessment of Coal Cleaning Processes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px 0;">Interim - final expected June 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>U. S. energy policy requires the accelerated development and implementation of environmentally sound technologies for the use of coal as an energy source. Physical and chemical coal cleaning are used to reduce the non-combustible mineral content of coal and to remove elements which result in dangerous air pollutants when burned. These coal cleaning processes and associated storage and transportation operations in turn result in the concentration of pollutants and wastes which must be controlled to avoid adverse environmental effects.</p> <p>This purpose of this effort is to collect data to characterize the pollutant emissions, residue disposal problems and pollutant control technology for various coal transportation, coal storage and coal cleaning processes. This effort will cover a wide range of activities which will include: technology overview studies, development of detailed process descriptions, development of environmental assessment criteria and evaluation plans, development of detailed process oriented test plans, performance and evaluation of environmental tests, generation of environmental impact studies, and performance trade-off studies on alternative pollution control methods. Adequate performance of this study will require in-depth experience in environmental test and analysis, engineering analysis and economic analysis.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		1	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>James D. Kilgroe</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED <b>795 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>May 76 (est.)</b>
		ESTIMATED COMPLETION DATE <b>6/77</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <div style="text-align: center; font-weight: bold; font-size: 1.2em;">77AAK</div>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation of the Battelle HCP Coal Desulfurization Process</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>E. Stambough - Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Battelle Columbus Laboratory 505 King Avenue Columbus, Ohio</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="padding: 10px;"> <p>The Battelle Hydrothermal Coal Process is a process for producing environmentally acceptable coals from high-sulfur coals. The objective of this program is to provide an environmental evaluation of the Battelle process for removal of pollutant-forming constituents.</p> <p>Battelle will achieve the objective of this research program by</p> <ul style="list-style-type: none"> <li>• Conducting combustion studies on hydrothermally treated coals and the corresponding raw coals</li> <li>• Characterizing hydrothermally treated coals and the raw coals and selected spent leachants</li> <li>• Evaluating the environmental impact of converting conventional boilers to hydrothermally treated coals as the source of fuel</li> <li>• Assessing the interchangeability of hydrothermally treated coals in utility and industrial boilers</li> <li>• Evaluating the potential of producing terephthalic acid from solubilized coal.</li> </ul> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: right;">DATE <b>17 Sept. 1975</b></div>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>L. Lorenzi, Jr.</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB /EPA</b>	
<input type="checkbox"/> RESEARCH GRANT			
FUNDS OBLIGATED <b>\$50,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>27 June 1975</b>
		ESTIMATED COMPLETION DATE <b>June 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAL-</b>	
TITLE OF PROJECT <b>Coal Cleaning Technology Development</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px 0;">Interim - final expected Mar. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b></p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>U. S. energy policy requires the accelerated development and implementation of environmentally sound technologies which use coal as an energy source. Physical coal cleaning can be used to reduce the non-combustible mineral matter in coal and remove elements which form dangerous pollutants when burned. The purpose of this effort is to develop information needed to accelerate physical coal cleaning as a cost-effective method for pollution control.</p> <p>Work to be performed under this effort will include: (1) the development through surveys and tests of cost and performance data on the capability of commercial equipment in removing pyritic sulfur from fine particle coal; (2) determine the performance of commercial equipment in dewatering fine coal from sulfur cleaning circuits; (3) evaluate needs for the development of air and water pollution control technology which result from fine coal separation and dewatering operations; and (4) perform process design studies to determine the costs of using coal cleaning to meet state and federal air pollution control standards.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		1A	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>James D. Kilgroe</b>	
		RESPONSIBLE ORGANIZATION <b>EPA/Cinicinnati, Corvallis</b>	
FUNDS OBLIGATED <b>330 K</b>		F.Y. <b>75</b>	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
		STARTING DATE <b>Feb. 76 (Est.)</b>	
		ESTIMATED COMPLETION DATE <b>12/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA  <b>77AAL</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Process Design Manual for Coal Preparation Plants</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>D. Nunenkamp - Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>J.J. Davis Associates 7900 Westpark Drive, Suite 915 McLean, Virginia</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="text-align: center;">This contract will provide in concise form the best of existing technology in physical coal cleaning operations to users of coal cleaning equipment. The manual will detail potential environmental problems and solutions for use by federal, state and local agencies. Specific processes utilized for physical cleaning operations will be discussed and illustrated through the use of data from existing installations. Current technology and advanced methods of cleaning will be stressed in order to provide usable information for implementation in design of new cleaning facilities.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  -  DATE  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>1B</b>  PROJECT OFFICER <b>M.J. Stutsman</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB/EPA</b>	
FUNDS OBLIGATED  <b>100 K</b>	F.Y.  <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <b>1</b>	STARTING DATE  <b>28 June 1974</b>
		ESTIMATED COMPLETION DATE  <b>28 June 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081							
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAL</b>							
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE									
TITLE OF PROJECT <b>Comparison of Fossil- and Wood-Derived Fuels</b>									
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>E.H. Hall - Principal Investigator</b>									
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Battelle Columbus Laboratories 505 King Avenue Columbus, Ohio</b>									
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The objectives of the study were as follows: <ul style="list-style-type: none"><li>● To evaluate wood as a fuel for a 50 MW power plant in Central Vermont as compared with alternative fuels, which included: low-sulfur coal, physically cleaned coal, high-sulfur coal burned with stack gas scrubbing, and low-sulfur fuel oil.</li><li>● To make a cursory study of the applicability of the concept to other areas of the country and to other sized power plants.</li><li>● To survey the Milton plant and assess the modifications required to satisfactorily receive and fire wood fuel, and to estimate the costs for all wood-handling, boiler-firing, and pollution-control modifications.</li><li>● To make a preliminary evaluation of the probable impact of burning wood at the Milton plant on the air quality in this vicinity; and, to estimate the usefulness of increasing the height of the stack.</li></ul>									
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>							
FOR OFFICE USE ONLY									
SUPPORT METHOD (Check one) <table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50px;"><input type="checkbox"/></td><td>AGENCY STAFF (Intramural)</td></tr><tr><td><input checked="" type="checkbox"/></td><td>NEGOTIATED CONTRACT</td></tr><tr><td><input type="checkbox"/></td><td>RESEARCH GRANT</td></tr></table>		<input type="checkbox"/>	AGENCY STAFF (Intramural)	<input checked="" type="checkbox"/>	NEGOTIATED CONTRACT	<input type="checkbox"/>	RESEARCH GRANT	TASK NO.  <b>1C</b>	
<input type="checkbox"/>	AGENCY STAFF (Intramural)								
<input checked="" type="checkbox"/>	NEGOTIATED CONTRACT								
<input type="checkbox"/>	RESEARCH GRANT								
		PROJECT OFFICER <b>J. Kilgrove</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB / EPA</b>							
FUNDS OBLIGATED <b>\$75,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>3 July 1975</b>						
		ESTIMATED COMPLETION DATE <b>Oct. 1975</b>							





U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAL</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Characterization of Coal and Coal Residue</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>W.J. Rhodes, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="text-align: center;">A new contract will look at potential pollutants that are organically combined in the coal and quantification between organic and inorganic portions will be made.</p> <p style="text-align: center;">Options would (1) conduct bench scale tests to determine the physical and chemical nature of these constituents as they are in the coal, (2) relate char production to its pollutants, (3) conduct column leaching tests on coal residues.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>W.J. Rhodes</b>	
		DATE  <b>17 Sept. 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>6</b>  PROJECT OFFICER <b>W.J. Rhodes</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB /EPA</b>	
FUNDS OBLIGATED <b>\$200 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>12/75</b> ESTIMATED COMPLETION DATE <b>6/77</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77AAL	
TITLE OF PROJECT    Construction, Operation and Evaluation of a Pilot Plant for the Chemical Removal of Pyritic Sulfur from Coal GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION TRW, Inc., TRW Systems Group 1 Space Park Redondo Beach, California 90278			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  EPA is actively supporting development work on a chemical extraction technique for the removal of pyritic sulfur from coal by use of the Meyers Process. This development has progressed to the stage of scale-up to pilot plant size. Pilot plant construction and operation is required and will be provided from this effort. The principal outputs from this study will be definitions of the integrated, operational feasibility of the process. All data necessary for technology advancement to demonstration/commercial scale will be generated.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  Mr. Robert Myers	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  7	
		PROJECT OFFICER Lloyd Lorenzi RESPONSIBLE ORGANIZATION EPA	
FUNDS OBLIGATED \$850,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 6/17/75  ESTIMATED COMPLETION DATE 11/17/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77 AAL	
TITLE OF PROJECT <b>Development Program for Treatment of Coal to Produce Low-Sulfur, Solid Fossil Fuel</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>D.K. Fleming Project Manager, Assistant Director, Process Evaluation</b> <b>R.D. Smith</b> <b>M.R.Y. Aquino</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Institute of Gas Technology</b> <b>3424 South State St.</b> <b>Chicago, Illinois 60616</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objective of this program is to determine on a bench and pilot unit-scale the operating parameters for the IGT Process to desulfurize coal by thermal and chemical means.</p> <p>Coal will be treated with a reducing atmosphere in the presence of a sulfur getter. Sulfur removal will be determined as a function of temperature, residence time, coal/getter ratio, coal composition, and particle size.</p> <p>In work to date under earlier contracts, Midwestern coal with 3.5-4 per cent sulfur content has been converted into solid fossil fuel that can be burned directly in conformance with Federal EPA New Source Performance Standards for sulfur emission.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>11/25/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>7</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Lloyd Lorenzi</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>EPA/RTP</b>	
FUNDS OBLIGATED <b>1500 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>11/7/75</b>
			ESTIMATED COMPLETION DATE <b>7/6/77</b>



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAL	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <u>Dev. of a Comprehensive Sampling &amp; Analytical Strategy for Refining Waste Streams &amp; Eval. of NO<sub>x</sub> &amp; Hydrocarbon Emissions, Control Tech. &amp; Ambient Impact</u> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Radian Corporation P. O. Box 9948 Austin, Texas 78766			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The project will employ an extensive literature search and detailed engineering analyses to obtain an estimate of the concentration of all identifiable compounds in the waste streams from within a typical petroleum refinery. The project will then seek to determine the feasibility of a generalized sampling and analytical strategy and the probable cost for applying this strategy to the waste streams addressed in this effort.  The project will also supply updated information concerning transport/transformation of oxidants and NO <sub>x</sub> .  Based on this information, a program will be developed for estimating relative contribution of source emissions on air quality, to include dry deposition and additional source categories (e.g., transportation and natural). This program and revised data will provide quantitative estimates of the relative contribution of specific category emissions on air quality in at least two cities (e.g., Boston, Chicago, St. Louis, or Los Angeles) to be designated. This program will also predict the impact of existing and planned ambient air quality reduction resulting from current regulations on present and future sources.  Within the limits of the data developed during the project, the study will include an analysis which compares the relative impact of emissions of NO <sub>x</sub> and hydrocarbons from identified source categories.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  Dr. D. Carlton	
DATE			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		8	
PROJECT OFFICER  I. A. Jefcoat		RESPONSIBLE ORGANIZATION  IERL-RTP / EPA	
FUNDS OBLIGATED  \$99,360	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE  4/30/75
		ESTIMATED COMPLETION DATE  8/30/75	

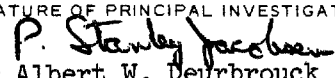
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R-0001	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAL-90B</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>The Utility of Solid Sorbents for Sampling Organic Emissions from Stationary Sources</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. William Hedley</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Monsanto Research Corporation Dayton Laboratory 1515 Nicholas Road Dayton, Ohio 45407</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The project will investigate the utility of solid sorbents in field sampling of organic emissions from stationary sources and quantitate the limitations of the various polymer packing materials with respect to temperature, composition, oxidizing nature, etc. of these effluent streams.  Initial laboratory studies shall be followed by field work on organic sources. Some means, such as cryogenic trapping, shall be provided to demonstrate trapping efficiencies for different species. Field comparisons shall also be made, whenever feasible, to wet impinger or other conventional trains.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>77AAL-90B</b>  PROJECT OFFICER <b>L.D. Johnson</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB</b>	
FUNDS OBLIGATED <b>\$45,704</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>5/1/75</b>  ESTIMATED COMPLETION DATE <b>10/30/75</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAL-90B	
TITLE OF PROJECT <b>Technical Services in Air Pollution Sample Acquisition and Analysis</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. William H. Hedley</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Monsanto Research Corporation          Dayton Laboratory          1515 Nicholas Road          Dayton, Ohio 45407</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The IERL-RTP is responsible for research, development and demonstration of air pollution control technology for stationary sources of pollution. During the conduct of studies to carryout this function, non-routine situations arise which require the utilization of measurement expertise and/or facilities not available within the Laboratory.</p> <p>The project will evaluate sampling procedures and sampling equipment required for the acquisition of representative samples from solid, liquid, gaseous and/or multiphase streams associated with industrial processes and/or air pollution control systems. Where specialized equipment is required, the effort shall develop specifications, fabricate the equipment, and perform laboratory and field evaluations.</p> <p>The project will also evaluate analytical procedures including sample handling, storage and preparation. Physical and chemical analyses will be performed on selected samples using wet chemical or instrumental techniques such as atomic absorption; neutron activation; X-ray fluroescence; X-ray diffraction; spark source mass spectrometry; gas chromatography; infrared, ultraviolet and visible spectroscopy; liquid chromatography; optical emission spectroscopy; electron microscopy; optical, electrical or aerodynamic particle size.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
		DATE  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>77AAL-90B</b>	
		PROJECT OFFICER <b>Larry Johnson</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB</b>	
FUNDS OBLIGATED <b>\$1,644</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>3 May 1974</b> ESTIMATED COMPLETION DATE <b>3 May 1977</b>





U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAL-10 77AAK-01	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Assessment of Coal Cleaning Processes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Interim - final expected June 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p>U. S. energy policy requires the accelerated development and implementation of environmentally sound technologies for the use of coal as an energy source. Physical and chemical coal cleaning are used to reduce the non-combustible mineral content of coal and to remove elements which result in dangerous air pollutants when burned. These coal cleaning processes and associated storage and transportation operations in turn result in the concentration of pollutants and wastes which must be controlled to avoid adverse environmental effects.</p> <p>This purpose of this effort is to collect data to characterize the pollutant emissions, residue disposal problems and pollutant control technology for various coal transportation, coal storage and coal cleaning processes. This effort will cover a wide range of activities which will include: technology overview studies, development of detailed process descriptions, development of environmental assessment criteria and evaluation plans, development of detailed process oriented test plans, performance and evaluation of environmental tests, generation of environmental impact studies, and performance trade-off studies on alternative pollution control methods. Adequate performance of this study will require in-depth experience in environmental test and analysis, engineering analysis and economic analysis.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		77AAL-10	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		77AAK-01	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER James D. Kilgroe RESPONSIBLE ORGANIZATION IERL-RTP	
FUNDS OBLIGATED N/A	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE May 76 (est.)
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E685-AJ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Physical/Chemical Coal Cleaning Technology Development</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Albert W. Deurbrouck, Acting Chief, Coal Preparation and Analysis Group</b> <b>Area Code/Phone: 412-892-2400 Ext. 261</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Coal Preparation and Analysis Group, U. S. Bureau of Mines</b> <b>4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>Conduct research on the development of practical physical and chemical coal cleaning technology for the removal of sulfur and ash. The following areas will be studied:</b> 1. Sulfur and ash release potential of U. S. coals when crushed and float-sink tested. 2. Development of a physical coal cleaning computer model for performance analysis, optimal design and operation, and economic evaluation of the coal washing operation. 3. Testing and assessment of the first commercial two-stage froth-flotation process for removal of pyritic sulfur from fine size coal. 4. Research to improve or develop techniques and approaches to mechanical dewatering of the fine size desulfurized coal. 5. Laboratory or bench scale evaluation of new or novel concepts for physical or chemical coal cleaning such as the hot aqueous caustic process for sulfur and ash removal. 6. Evaluate the performance characteristics of coal washing equipment. 7. Miscellaneous studies in support of the above. <b>Major Milestones:</b> 1. Publish update of report on coal cleanability studies. 1a. Publish preliminary report on cleanability of Northern Appalachian region coals. 1b. Publish final report on cleanability studies for Northern Appalachian region. 2. Publish interim report on the physical coal cleaning computer model. 3a. Complete construction of the commercial two-stage froth flotation process. 3b. Publish report on the test program for the two-stage froth flotation process. 4. Publish interim report on adsorption-desorption reactions in two-stage froth flotation. 5. Complete preliminary bench scale evaluation of hot aqueous caustic process. 6. Publish interim report on status of in-house coal cleaning projects.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>NA</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  for Albert W. Deurbrouck	
		DATE  <b>08-12-75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>1</b>	
		PROJECT OFFICER <b>Albert W. Deurbrouck</b> RESPONSIBLE ORGANIZATION <b>Coal Preparation and Analysis Group</b> <b>U. S. Bureau of Mines</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>200 K</b>	<b>1976</b>	<b>5</b>	<b>FY 1962</b>
			ESTIMATED COMPLETION DATE
			<b>FY 1981</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA EPA-IAG-D5-E685-AK	
TITLE OF PROJECT Coal Cleaning Waste Disposal and Reuse			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Albert W. Deurbrouck, Acting Chief, Coal Preparation and Analysis Group Area Code/Phone: 412-892-2400 Ext. 261			
NAME AND ADDRESS OF APPLICANT INSTITUTION Coal Preparation and Analysis Group, U. S. Bureau of Mines 4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Develop a laboratory process and demonstrate the process in a pilot plant to eliminate coal refuse ponds and the associated environmental problems by processing the waste to recover coal and other marketable materials and then dewatering and agglomerating the remaining waste into a coarse refuse or a construction type material.  Major Milestones:  1. Sample larger washery impoundments to determine quantity of coal and characteristics of the waste. 2. Conduct bench scale laboratory tests to determine optimum flowsheet for recovering coal as a salable product. 3. Assemble a pilot plant based on bench scale tests and demonstrate technical feasibility of recovering coal. 4. Publish results of demonstration (pilot plant) tests on sampled washery impoundment wastes.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) NA		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>P. Stanley Jacobsen</i> for Albert W. Deurbrouck	
		DATE 08-12-75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 1  PROJECT OFFICER Albert W. Deurbrouck RESPONSIBLE ORGANIZATION Coal Preparation and Analysis Group U. S. Bureau of Mines	
FUNDS OBLIGATED 200 K	F.Y. 1976	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE July 1975
		ESTIMATED COMPLETION DATE January 1977	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E685-AL	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Coal Washing Test Facility</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Albert W. Deurbrouck, Acting Chief, Coal Preparation and Analysis Group</b> <b>Area Code/Phone: 412-892-2400 Ext. 261</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Coal Preparation and Analysis Group, U. S. Bureau of Mines</b> <b>4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Design and construct a coal washing test facility in Pittsburgh which can be used to test new techniques and equipment for removal of sulfur and ash from coal and for preparation of the desulfurized coal for transportation with minimum dust losses. The test facility would also be used to produce ton lots of specification coal for EPA projects in combustion testing, flue gas scrubbing, fluidized bed combustion and synthetic fuel process raw and acid gas cleanup.</b>  <b>Major Milestones:</b>  1. Complete plant design. 2. Complete construction. 3. Publish report on first year operations.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>NA</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>P. Stanley Jackson</i> for <b>Albert W. Deurbrouck</b>	
		DATE <b>08-12-75</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <b>1</b>  PROJECT OFFICER <b>Albert W. Deurbrouck</b> RESPONSIBLE ORGANIZATION <b>Coal Preparation and Analysis Group</b> <b>U. S. Bureau of Mines</b>	
FUNDS OBLIGATED <b>\$500 K</b>	F.Y. <b>1976</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>2</b>	STARTING DATE <b>March 1, 1975</b>
		ESTIMATED COMPLETION DATE <b>January 1979</b>	

# FLUE GAS CLEANING

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <span style="float: right;">77AAR</span>	
TITLE OF PROJECT <span style="float: right;">Environmental Assessment and Systems Analysis of Stationary  <del>Combustion Source Pollutant Control Technologies (NO<sub>x</sub>)</del></span>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Feb. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies sup- porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>This effort will provide for environmental assessments and systems analyses of low NO<sub>x</sub> control technologies for stationary combustion sources. The study, planned as a three-year 77,500 manhour level-of-effort contract, will emphasize analytical process engineering and field testing activities to evaluate the impact of the control technologies on the environmental air, water and land quality and on the operation of the energy conversion systems to which they will be applied. The contractor will also be required to develop background information on the various NO<sub>x</sub> control technologies and strategies, and to recommend further development and application of the control technologies as required to meet control objectives.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		1	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER <b>Joshua S. Bowen</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDS OBLIGATED <b>\$129 K Base \$350 K Energy</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Jan. 76 (Est.)</b>
			ESTIMATED COMPLETION DATE <b>6/80</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77AAR	
TITLE OF PROJECT <b>Field Testing - Application of Improved Combustion Technology to Power Generation Combustion Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Dec. 75			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The IERL-RTP requires information relating the effect of combustion modification techniques on utility power-generating equipment (boilers, stationary engines, gas turbines) to air pollution emissions, equipment performance, and efficiency. Emissions to be measured include NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, gaseous hydrocarbons, particulate (mass and size distribution), and toxic and hazardous pollutants. Fuels to be used in this study include natural gas, oil, coal, waste fuel, and combinations of these. Equipment performance evaluation will include long-term tube wall corrosion rate measurements determining the relation of slagging to firebox conditions, and determining how boiler reliability is affected. As a result of the program two guideline manuals shall be prepared, in addition to a final report. One guideline will be directed toward manufacturers to indicate which designs produce the lowest emission and best efficiency, and the second will be prepared for operators to indicate how conventional equipment operation can be modified to reduce emissions and improve efficiency.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		3	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER <b>Robert E. Hall</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDS OBLIGATED <b>\$450 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Nov. 75 (Est.)</b>
			ESTIMATED COMPLETION DATE



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77 AAR	
TITLE OF PROJECT <u>Field Testing - Application of Improved Combustion Technology to Industrial Combustion Equipment</u>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Interim - final expected Jan. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The IERL-RTP requires information relating the effect of combustion modification techniques and operating variables on industrial combustion equipment (kilns, ovens, dryers, process furnaces, boilers, stationary engines, and gas turbines) to air pollutant emissions, efficiency, and equipment performance. Fuels to be used in this study include natural gas, distillate oil, residual oil, coal, waste fuel, and combinations of these. Emissions to be measured will include NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>, gaseous hydrocarbons, smoke, particulate (mass and size distribution) and toxic elements. A survey will be conducted on equipment, location of equipment for testing, field tests will be performed and reports prepared. The study will determine the effectiveness of techniques such as staged combustion; varying excess air, load, and air preheat; and water injection, which have been applied to boilers in past studies. The test matrix will include equipment with variations in design, rating, fuel type, and combustor design and location. As a result of the program a final report and guideline manuals will be prepared. The guideline manuals will be prepared for each equipment type and will include design and operation information specifically for equipment manufacturers and operators.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<u>Robert E. Hall</u> RESPONSIBLE ORGANIZATION <u>IERL-RTP/EPA</u>	
TASK NO.  4-2		STARTING DATE Dec. 75 (Est.)	
FUNDING ORIGINATED \$100 K Base \$500 K Energy		ESTIMATED COMPLETION DATE 6/80	
F.Y. 75		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAS</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Staged Combustion Technology for Coal Fired Utility Boilers</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Ambrose P. Selker, Project Manager</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Combustion Engineering, Inc. 1000 Prospect Hill Road Windsor, CT 06095</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-left: 40px;"> <p>(1) Objective - to investigate the effectiveness and acceptability of employing overfire air as a method for reducing NO<sub>x</sub> emission from tangentially coal fired steam generators.</p> <p>(2) Approach -</p> <div style="margin-left: 20px;"> <p>(a) Design, fabricate and install a system to provide for introduction of a portion of the combustion air supply above the normal admission points in the furnace of a tangentially coal fired steam generator.</p> <p>(b) Perform baseline tests before installation of system described in (a) and evaluate reduction in NO<sub>x</sub> emission under various conditions of overfire air admission after installation of system. The effects on emission of other pollutants and furnace operation (slagging, flame stability, or corrosion potential) will be evaluated.</p> <p>(c) Based on the data analysis, estimates will be made on the degree of emissions control attainable and the general applicability and costs of these techniques as applied to existing or new units.</p> </div> <p>(3) Current plans and/or progress - Work initiated on item (2) (a) on July 9, 1973. Scheduled completion by 10/75.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.  <b>1-1</b>	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>David G. Lachapelle</b> RESPONSIBLE ORGANIZATION <b>EPA</b>	
FUNDS OBLIGATED <b>\$10,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Contract Near Completion</b>	STARTING DATE <b>6/30/73</b>
		ESTIMATED COMPLETION DATE <b>10/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS	
TITLE OF PROJECT <b>Analysis of NO<sub>x</sub> Control in Stationary Sources</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Mr. Owen W. Dykema</b> <b>Manager, Combustion Effects</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>The Aerospace Corp.</b> <b>2350 East El Segundo Blvd.</b> <b>El Segundo, Calif. 90245</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>Under ongoing programs NO<sub>x</sub> emissions from gas-fired boilers at full load have been reduced by as much as 81 percent, or as little as 37 percent depending on size, configuration, and operating characteristics of the unit. Reduction for oil and coal-fired boilers range from 60 to 30 percent, and 60 to 20 percent, respectively. Although these reductions are significant, they do not necessarily represent the maximum, practical attainable values. In application of combustion modification techniques where NO<sub>x</sub> reductions were achieved, the degree of reduction has been limited by the excessive emission of CO or smoke, or the occurrence of combustion instability or flame lift-off. By relieving these problems by several proposed methods further reduction in NO<sub>x</sub> could be achieved.</p> <p>This research grant includes three sub-tasks involved in the general investigation of practical methods to reduce NO<sub>x</sub> emissions in utility boilers; namely, (1) combustion and flame stability, (2) effects of combustion modification on plant efficiency, and (3) effect of combustion modifications on tangential oil-fired boilers, and two sub-tasks in the continuing compilation and up-date of the emissions inventory; namely, (1) utility and industrial boiler data up-date, and (2) addition of other major point source categories.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
DATE  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 24px;">2</div>	
PROJECT OFFICER <b>Robert E. Hall</b>		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$92,000</b>	<b>75</b>	<b>One (1)</b>	<b>07/15/75</b>
ESTIMATED COMPLETION DATE			DATE
<b>07/14/76</b>			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAS</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Design, Component Purchase and Fabrication of an Experimental Multi-Burner Furnace</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>L.W. Anderson, Program Manager</b> <b>R.A. Brown, Project Engineer</b> <b>F.E. Moreno, Project Engineer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Aerotherm Division, Acurex Corporation</b> <b>485 Clyde Avenue</b> <b>Mountain View, CA. 94042</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="text-align: center;">Previous EPA contracts with Aerotherm have provided for the construction of a basic multi-burner combustion chamber, burners, flue gas cooling system and flame safeguard system. This project will complete the detailed system design and purchase/fabricate all components of the system to permit installation and operation of the integrated facility.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>2-9</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>David G. Lachapelle</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, CRB / EPA</b>	
FUNDS OBLIGATED <b>\$50,700</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Contract Completed</b>	STARTING DATE <b>12/11/74</b>
		ESTIMATED COMPLETION DATE <b>8/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS	
TITLE OF PROJECT <u>Pilot Scale Evaluation of Advanced Combustion Control Tech. for Fossil &amp; Waste Fuels</u> <small>GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.</small> L.W. Anderson - Program Manager - Environmental Engineering Systems R.A. Brown - Principal Investigator - Energy/Environmental Sciences Dept. H.B. Mason - Project Engineer - Energy/Environmental Sciences Dept. J.O.L. Wendt - Consultant - University of Arizona D. W. Pershing - Consultant - University of Arizona			
NAME AND ADDRESS OF APPLICANT INSTITUTION Aerotherm Div/Acurex Corp. 485 Clyde Avenue Mtn. View, Calif. 94042			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). <small>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small>  <p>The objective of this 28-month experimental research project is to develop advanced low emission high efficiency combustion techniques for application to industrial and utility boilers firing fossil and waste fuels. Primary emphasis will be on control of oxides of nitrogen (NO<sub>x</sub>) through modification of combustion conditions. The facility is a subscale versatile furnace, with capacity of 3 x 10<sup>6</sup> Btu/hr, capable of firing a variety of solid, liquid and gaseous fuels. The furnace may be operated either in the wall firing mode, using up to 10 individual burners, or in the tangential, corner, firing mode using up to 24 individual fuel/air nozzles. The research burners for single wall or opposed wall firing are of a variable swirl double concentric design with capacities of either 300,000 Btu/hr or 1.5 x 10<sup>6</sup> Btu/hr.</p> <p>The first year effort will focus on NO<sub>x</sub> control techniques for conventional fossil fuels, primarily pulverized coal and residual oil. Initially, the combustion characteristics of the furnace will be studied to establish the correspondence to full-scale utility and industrial boilers. Subsequent testing will optimize NO<sub>x</sub> control through two-stage combustion, flue gas recirculation and low excess air firing for the wall fired and tangentially fired configurations. Emphasis will be given to identification of optimum staging conditions for reduction of NO<sub>x</sub> from coal fired boilers.</p> <p>The second year program will explore NO<sub>x</sub> control techniques for the firing of mixed conventional fuels, new alternate fuels, waste fuels, and mixtures of conventional fuels with alternate or waste fuels.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 2-10  PROJECT OFFICER David Lachapelle RESPONSIBLE ORGANIZATION IE RL-RTV/EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$200,000	75		6/06/75
			ESTIMATED COMPLETION DATE
			10/06-77

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAS</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Residential Oil Furnace System Optimization</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>G. Blair Martin, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  An eighteen month analytical and experimental program has been initiated for the establishment of technology for an integrated residential furnace system to combine minimum pollutant emissions with maximum system efficiency. The program is divided into two phases. Phase I consists of an analytical and experimental study to define the requirements of system components. Phase II involves the assembly and testing of a prototype system and the definition of an integrated residential heating system capable of NO <sub>x</sub> emissions of less than 0.5g NO/kg of fuel with minimum CO, UHC and smoke, and overall system efficiency which is more than 10% higher than that achieved by current conventional systems.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>None</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>S/</b>	
		DATE  <b>7/2/74</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>3-1</b>	
		PROJECT OFFICER <b>G. Blair Martin</b> RESPONSIBLE ORGANIZATION <b>IERL/RTP / EPA</b>	
FUNDS OBLIGATED  <b>\$300 K</b>	F.Y.  <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <b>one</b>	STARTING DATE  <b>6/30/74</b>
		ESTIMATED COMPLETION DATE  <b>3/30/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAS</b>	
TITLE OF PROJECT <b>Assessment and Application of Combustion Additive Process for NO<sub>x</sub> Control</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Feb. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK -</b> (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>This effort provides for a two-phase study of Exxon proprietary technology for post-flame injection of a gaseous species (NH<sub>3</sub>) to promote reduction of NO<sub>x</sub> to nitrogen. The first phase of work will provide the necessary information to document feasibility and estimate costs for applying this technology to a coal-fired utility boiler. The results of the Phase I work will provide the basis for the Government's option to proceed with the second phase of work. Phase II, entitled "Field Demonstration of Additive Injection Technology on a Coal-Fired Boiler" will consist of discrete tasks designed to provide demonstration of this technology for two levels of NO<sub>x</sub> control, i.e., 0.7 lb/10<sup>6</sup> Btu and 0.3 to 0.4 lb/10<sup>6</sup> Btu. The result of the Phase II effort will be a final report documenting the results of the field demonstrations. Additionally, the report will provide application guidelines and implementation costs of this technology for a variety of utility boiler types and sizes.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		4-4	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER	
<input type="checkbox"/> RESEARCH GRANT		David G. Lachapelle	
		RESPONSIBLE ORGANIZATION	
		IERL-RTP/EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$200 K	75		Jan. 76(Est.)
			ESTIMATED COMPLETION DATE

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77AAS	
TITLE OF PROJECT <b>Advanced Combustion Systems for Stationary Gas Turbine Engines</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">Interim - final expected Feb. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b></p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The IERL-RTP is initiating a program to develop advanced combustors for stationary gas turbine engines. This program is designed to develop new hardware for both next generation turbine engines and potential retrofit to existing turbine engines. Emphasis will be placed on low emissions, high efficiency, and fuel versatility to directly address the Nation's pollution and energy problems. The study will include design, construction, and testing of new combustion systems based on advanced concepts to establish recommended low emission equipment compatible with future high efficiency gas turbine engines. These combustion systems must function with practical fuels that will be used in the late 1970's and 1980's.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		J. H. Turner	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		IERL-RTP / EPA	
FUNDS ORIGINATED		STARTING DATE	
\$450 K		Jan. 76 (Est.)	
F.Y.		ESTIMATED COMPLETION DATE	
75			
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.			





U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  <div style="text-align: right;">77AAS</div>	
TITLE OF PROJECT <b>Advanced Concepts for Effluent Treatment of Flue Gases for NO<sub>x</sub> Control</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Raimond Liepins</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Research Triangle Institute P.O. Box 12194 Research Triangle Park, N.C. 27709</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The techniques for controlling NO<sub>x</sub> emissions from stationary sources are combustion modification and flue gas treatment. Combustion modification (CM) reduces the amount of NO<sub>x</sub> formed while flue gas treatment (FGT) removes the NO<sub>x</sub> from the stack gases after it has been formed.</p> <p>It is the purpose of this project to assess the relative merit of a number of advanced concepts for effluent treatment to determine which offer the most promise for becoming a useful NO<sub>x</sub> removal process and to recommend research and development required for further evaluation.</p> <p>Initial studies considered for investigation include:</p> <ol style="list-style-type: none"> <li>1. Simultaneous NO<sub>x</sub>/SO<sub>x</sub> Scrubbing with Organic liquids and/or solids.</li> <li>2. NO<sub>x</sub> Scrubbing, with Hydrated Polyamides.</li> <li>3. NO<sub>x</sub> Scrubbing, using dilute Acid Urea.</li> <li>4. NO<sub>x</sub> Scrubbing, using Fluorocarbons.</li> <li>5. NO<sub>x</sub> Scrubbing, using Cellulosics.</li> <li>6. NO<sub>x</sub> Scrubbing, Synergism Phenomenon.</li> </ol> <p>Pending results of initial studies, laboratory evaluation of the most promising concepts will be undertaken. Studies and laboratory evaluations, as appropriate, will include consideration of effluent gases, liquids, and solids as potential secondary effects of the control process. As additional novel concepts come to light, the EPA Project Officer may direct the contractor to perform studies and analysis as appropriate.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: right;">DATE <b>Sept. 17, 1975</b></div>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>6-4</b>  PROJECT OFFICER <b>Roger Christman</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, PTB / EPA</b>	
FUNDS OBLIGATED <b>\$59,200</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>6/75</b>
		ESTIMATED COMPLETION DATE <b>12/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAS</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Burner Design Criteria for Current and Future Gaseous Fuels</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>D.H. Larson, Project Manager</b> <b>D.R. Shoffstall, Technical Supervisor</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Institute of Gas Technology</b> <b>3424 South State Street</b> <b>IIT Center</b> <b>Chicago, Illinois 60616</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objective of this study is to combine the background and experience from previous IGT programs and to conduct carefully planned additional experiments to produce optimum, low-emission burner design criteria for the major burner classes. The study will establish the relative controls available through the various burner designs and classical modification techniques as well as establish what operation parameters will be changed. The specific result of this program will be to establish alternative control strategies for gas systems. It will also provide a basis for low-pollution design criteria with other fossil fuel systems including low-Btu gases.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		<b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>7-2</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>David G. Lachapelle</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL, EACD, ORB / EPA</b>	
FUNDS OBLIGATED <b>\$30,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>6/30/73</b>
		ESTIMATED COMPLETION DATE <b>8/30/76</b>	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS	
TITLE OF PROJECT <b>Fuel Decomposition and Flame Reactions in Conversion of Fuel Nitrogen to NO<sub>x</sub></b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. W.H. Nurick - D/522, Advanced Programs, Project Manager A.E. Axworthy - D/522, Advanced Programs, Principal Investigator D.R. Kahn - D/522, Advanced Programs, Member of the Technical Staff V.H. Dayan - D/522, Advanced Programs, Member of the Technical Staff			
NAME AND ADDRESS OF APPLICANT INSTITUTION Rocketdyne Division, Rockwell International Corporation 6633 Canoga Avenue, Canoga Park, CA 91304			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  A nine-month experimental and analytical program has been initiated to provide information on fuel decomposition, fuel oxidation and flame reactions which is required for the development of a complete understanding of the chemical phenomena involved in the conversion of organic fuel nitrogen compounds to NO <sub>x</sub> during combustion. The program is divided into three tasks. Task I consists of additional experimental studies of the types of chemical reactions that fuel nitrogen species can undergo as fuel reacts in the early (preflame) stages of combustion. The pyrolysis and oxidation of model nitrogen compounds, coals, residual oils and alternate fuels will be investigated. Task II involves the study of combustion kinetics involved in fuel NO <sub>x</sub> formation from HCN and NH <sub>3</sub> in premixed CH <sub>4</sub> flames including: (1) interactions with thermal NO <sub>x</sub> formation, (2) more detailed analysis of nitrogen-containing species, and (3) organic nitrogen additives or diffusion flame studies. Task III will involve summarizing the data analysis and synthesizing the results into a quantitative scheme for the conversion of fuel nitrogen to NO and other pollutants.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR A. Axworthy	
		DATE 6/27/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 8-1	
		PROJECT OFFICER s/G. Blair Martin	
		RESPONSIBLE ORGANIZATION EPA, IERL	
FUNDS OBLIGATED \$25,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE 6/13/75
		ESTIMATED COMPLETION DATE 4/13/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAS</b>	
TITLE OF PROJECT <b>Definition of the Mechanism and Kinetics of the Formation of NO<sub>x</sub> and Other Pollutants</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. V.S. Engleman</b> <b>Dr. W. Bartok</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Exxon Research and Engineering Company</b> <b>Government Research Laboratory</b> <b>P.O. Box 8</b> <b>Linden, N.J. 07036</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<ol style="list-style-type: none"> <li>(1) This study is being performed to relate the kinetics and mechanisms of pollutant formation reactions and those of hydrocarbon reactions. The emphasis in this program has been placed on NO<sub>x</sub> formation and decomposition reactions, as they relate to hydrocarbon combustion.</li> <li>(2) Experimental investigations were performed on the Exxon Multiburner, Jet-Stirred reactor and the new Adiabatic Stirred Reactor (ASC). Theoretical analyses are also being used to elucidate the experimental data.</li> <li>(3) The effort under this contract is currently completed except for finalization of the final reports.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE  <b>17 Sept. 1975</b>
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>8-3</b>	<b>W.S. Lanier</b>
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			RESPONSIBLE ORGANIZATION
<input type="checkbox"/> RESEARCH GRANT			<b>IERL-RTP/ EPA</b>
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>Base 100 K</b>	<b>75</b>	<b>Unknown</b>	<b>Sept. 1975</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS	
TITLE OF PROJECT <b>Investigation of Aerodynamic Phenomena in Pollution Control</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. Louis J. Spadaccini - Combustion Technology Dr. Craig T. Bowman - Environmental Sciences Mr. Henry McDonald - Chief Gas Dynamics			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>United Aircraft Corporation Research Laboratories</b> <b>400 Main Street</b> <b>East Hartford, Connecticut 06108</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">This document has been prepared in response to a Request for Proposal, DU-75-AO88, from the U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. The research program will investigate aerodynamic phenomena in the control of pollutants from gaseous and heterogeneous combustion. The program has four primary objectives:</p> <ol style="list-style-type: none"> <li>(1) To utilize recently developed optical and probing techniques to obtain detailed information on the chemical and physical processes occurring inside a combustor operating on gaseous and liquid fuels.</li> <li>(2) To compare experimental observations with results from a combustor flow analysis (FREP code) to further evaluate the theoretical model.</li> <li>(3) To further develop the combustor flow analysis for predicting the physical and chemical processes occurring in combustors operating on gaseous and liquid fuels.</li> <li>(4) To utilize information obtained from the experimental and theoretical investigation to evaluate potential emission control strategies for gaseous and liquid fuel combustors.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  s/Craig T. Bowman	
		DATE  4/9/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>W. Steven Lanier</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>IERL-RTP /EPA</b>	
FUNDS OBLIGATED <b>\$200,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>31 March 1975</b>
		ESTIMATED COMPLETION DATE <b>30 Sept. 1976</b>	





U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS	
TITLE OF PROJECT <b>Technical Manual for Biological Testing</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Forest Mixon</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Research Triangle Institute</b> <b>Post Office Box 12194</b> <b>Research Triangle Park, N.C. 27709</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The environmental assessment of process streams requires a detailed evaluation of the stream properties. Chemical analyses alone cannot be utilized to prioritize effluent streams impact. As an adjunct to analysis, rapid and inexpensive biological tests are desirable.</p> <p>The project will produce a technical manual dealing with recommended procedures for sampling and analysis of stationary sources and process streams for biologically active material. Methods for sample acquisition, handling, storage, and bioassay will be covered.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		9	
		PROJECT OFFICER <b>L.D. Johnson</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB/ EPA</b>	
FUNDS OBLIGATED <b>\$8, 186</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>9/12/75</b>
		ESTIMATED COMPLETION DATE <b>11/3/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAS</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Assessment Analysis of Organic Substances from Stationary Sources and Process Streams</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Peter Jones</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Battelle Columbus Labs. 505 King Ave. Columbus, Ohio 43201</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The project will produce a technical manual dealing with recommended procedures for sample handling and analysis of organic material in environmental and process samples. It is anticipated that most of the necessary information will be derived from the literature and the contractor's past experience with such samples, but additional laboratory work is permissible within the time limitations given. All possible information concerning expected costs, specificity, accuracy and precision should be included. This may require a multi-level approach in which initial screening procedures are priced at one level and more detailed approaches are listed with higher expected costs.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>9</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>L.D. Johnson</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB / EPA</b>	
FUNDS OBLIGATED <b>\$29,590</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>5/1/75</b>
		ESTIMATED COMPLETION DATE <b>9/15/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-P0051	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAS</b>	
TITLE OF PROJECT <b>Particle Sizing Interferometer Electronics Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">Interim - final expected Feb. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The IERL-RTP has developed, through contract, a laser velocimeter system which is presently being used in-house to obtain velocity profile data from flames in research furnaces. This particular study will add to the present capability of the laser velocimeter system by measuring the size of each particle generating the velocity data. The particle size data will prove useful to researchers in two respects. First, by knowing the size of the particle which generated a velocity signal the validity of that velocity signal can be evaluated. This is true because there is a direct relationship between particle size and velocity accuracy. Secondly, the particle size data in and of itself is of interest.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>9-1</b>	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>William B. Kuykendal</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS ORIGINATED <b>\$75 K Base</b>		F.Y. <b>75</b>	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
		STARTING DATE <b>Jan. 76 (Est.)</b>	
		ESTIMATED COMPLETION DATE <b>6/72</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS-010E	
TITLE OF PROJECT <b>Definition of the Mechanism and Kinetics of the Formation of NO<sub>x</sub> and Other Pollutants</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. V.S. Engleman Dr. W. Bartok			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Exxon Research and Engineering Company Government Research Laboratory P.O. Box 8 Linden, N.J. 07036</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-left: 20px;"> <p>(1) This study is being performed to relate the kinetics and mechanisms of pollutant formation reactions and those of hydrocarbon reactions. The emphasis in this program has been placed on NO<sub>x</sub> formation and decomposition reactions, as they relate to hydrocarbon combustion.</p> <p>(2) Experimental investigations were performed on the Exxon Multiburner, Jet-Stirred reactor and the new Adiabatic Stirred Reactor (ASC). Theoretical analyses are also being used to elucidate the experimental data.</p> <p>(3) The effort under this contract is currently completed except for finalization of the final reports.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE 17 Sept. 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>W.S. Lanier</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>77AAS-010E</b> <b>IERL-RTP</b>	
FUNDS OBLIGATED <b>N.A.</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>Sept. 1975</b>
ESTIMATED COMPLETION DATE <b>Sept. 1975</b>			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAS-10G	
TITLE OF PROJECT <b>NO<sub>x</sub> Control Technology Status Reports</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>L.W. Anderson, Project Manager</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Aerotherm Division, Acurex Corporation 485 Clyde Avenue, Mountain View, CA 94042</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>Numerous technical papers and reports have been published in recent years on the subject of control of nitrogen oxides from stationary sources. The present state-of-the-art is well established and has been adequately reported in the literature. Federal New Source Performance Standards for NO<sub>x</sub> have been promulgated for a variety of equipment classes and are planned for other sources in the near future. Additionally, State and local standards for NO<sub>x</sub> are in-effect for specific existing and new combustion sources.</p> <p>It is important that the technical community engaged in research and development of NO<sub>x</sub> control methods, as well as those involved in standards preparation and/or enforcement, be kept informed of the status of NO<sub>x</sub> control technology developments and implementation. By providing periodic concise announcements of planned or implemented NO<sub>x</sub> control technology, the dialogue within the "NO<sub>x</sub>-community" can be improved and technology transfer can be expedited.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		77AAS-10G	
PROJECT OFFICER		RESPONSIBLE ORGANIZATION	
David G. Lachapelle		IERL, EACD, CRB	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$7,100	75	1	
ESTIMATED COMPLETION DATE			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAU	
TITLE OF PROJECT <b>Emissions Assessment of Conventional Combustion Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Ronald A. Venezia, Project Officer			
NAME AND ADDRESS OF APPLICANT INSTITUTION  INTERIM			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">This project will fill the major gaps in the air, water, and solid waste emission data base for conventional combustion systems. The emissions will be investigated on a unit operations level (e.g., fuel storage, combustion, waste disposal, etc.) including specifying the physical and chemical state in which the pollutant is emitted (i.e., vapor, aerosol, adsorbed gas, liquid suspension, element or compound). The emission rates of the pollutants will be by the most appropriate means, such as field sampling, material balance calculations, or manipulation of existing data.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N.A.		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
		DATE  17 Sept. 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 2em;">1</div>	
		PROJECT OFFICER <b>Ronald A. Venezia</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, CPB/ EPA</b>	
FUNDS OBLIGATED <b>\$600 K Base</b> <b>\$1100 K Energy</b>	F.Y. <div style="text-align: center; font-size: 1.5em;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <div style="text-align: center; font-size: 1.5em;">2</div>	STARTING DATE <div style="text-align: center; font-size: 1.5em;">12/75</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center; font-size: 1.5em;">12/77</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		<i>Form Approved</i> OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<b>77AAU</b>	
TITLE OF PROJECT <b>Complex Terrain Modeling Study</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>George C. Holzworth, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>This proposed study is to be co-sponsored by the Meteorology and Assessment Division, Environmental Sciences Research Lab-RTP, and by the Industrial Environmental Research Lab.-RTP, OR&amp;D.</p> <p>The trend toward locating large power plants in mountainous terrains, near readily accessible coal supplies, has created a new concern for the implications of the SO<sub>2</sub> laden atmospheres surrounding these facilities. The question of the transport and transformation of these atmospheres, and of the ground-level burden created by these atmospheres has been the impetus for this proposed study.</p> <p>This effort will seek to provide comprehensive data on SO<sub>2</sub> emissions in complex terrains by continuous monitoring at remote locations of expected high SO<sub>2</sub> concentrations, and by airborne and mobile measurements at surface levels. These results, in combination with meteorological factors, will produce a comprehensive assessment upon which the Agency can base rational, defensible policy decisions.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <b>1</b>  PROJECT OFFICER <b>George C. Holzworth</b>  RESPONSIBLE ORGANIZATION <b>Environmental Sciences Research Lab./EPA            Meteorology &amp; Assessment Div., ORD</b>	
FUNDS OBLIGATED <b>\$600 K Base</b> <b>\$1100 K Energy</b>		F.Y. <b>75</b>  NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>  STARTING DATE <b>12/75</b>  ESTIMATED COMPLETION DATE <b>12/77</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAU</b>	
TITLE OF PROJECT <b>Establish Operating Procedures for Fine Particulate Control Equipment</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>D.C. Drehmel, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The Environmental Protection Agency is developing technology for abatement of fine particle emissions from stationary sources. The Agency is seeking an organization to establish operating procedures for fine particle control equipment.</p> <p>The work will require that the contractor shall:</p> <ol style="list-style-type: none"> <li>1. Review the current practice of particulate control for a given source such as power generation or some aspect of chemical or industrial processing.</li> <li>2. Review recent fine particle collection data and interpret mass efficiency data in terms of fine particle collection for the selected source.</li> <li>3. Review design, start-up, and operating procedures and problems associated with particulate abatement equipment for the given source.</li> <li>4. Interpret fine particle collection with respect to operating procedures and problems and establish necessary procedures.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>1</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>D.C. Drehmel</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UPID, PTB / EPA</b>	
FUNDS OBLIGATED <b>\$600 K Base</b> <b>\$1100 K Energy</b>		F.Y. <b>Unknown</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		STARTING DATE <b>12/75</b>	
		ESTIMATED COMPLETION DATE <b>12/77</b>	





U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAU</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Particulate Sampling and Support</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Interim - final expected Mar. 76.</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b>          In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>A number of energy and pollution control projects in IERL-RTP require extensive characterization of the particulate material in the flow streams. At the state of the art level the goal is to provide the necessary procedures to Laboratory groups to determine the environmental impact of the particulate contained in various systems. This effort will provide for the evaluation, development, field testing &amp; applications research of the particulate sampling procedures necessary to conduct environmental assessments and technology development projects in the energy and industrial processes programs. The contractor will be responsible for: measurement evaluation and development; pre-preparation of guidelines and recommended procedures; solution of specific problems; and, assistance to project officers and contractors in the application of procedures to specific process streams.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>D. Bruce Harris</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
TASK NO.  <b>2</b>			
FUNDING OBLIGATED <b>\$125 K Base</b> <b>\$300 K Energy</b>		F.Y. <b>75</b> NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
		STARTING DATE  <b>3/75</b> ESTIMATED COMPLETION DATE  <b>6/76</b>	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAU	
TITLE OF PROJECT <b>Develop and Demonstrate Improved Fine Particulate Filter Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Norman Surprenant</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>GCA Technology Division Bedford, Mass. 01730</b>			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p>Utilizing the filter bags retained from testing at earlier sites, the Contractor shall examine them to determine the manner in which particles are retained in and on the fabric. Items that shall be investigated include, but are not limited to, surface deposition and interstitial deposition, dust holding capacity, entanglement, particle and pore shape and size, electrostatic forces, Kelvin attachment by water vapor or other condensed vapors, and other adhesive or cohesive forces.</p> <p>Single bag/single compartment experimentation in the laboratory shall be performed so that sufficient information is obtained to write design equations for fabric filters. Knowledge of the manner in which particles deposit on the fabric surface shall be used to formulate equations which will describe gas flow and particle flow through the fabric surface as a function of time, gas properties and particle properties.</p> <p>The descriptive and design equations shall be presented subject to suitable cautions in regard to error bands found from the field and laboratory work, and applicability to disparate systems.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>4</b>  PROJECT OFFICER <b>J.H. Turner</b>  RESPONSIBLE ORGANIZATION <b>IERL - RTP, UIPD, PTB / EPA</b>	
FUNDS OBLIGATED <b>\$42,700</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>5 June 1974</b>  ESTIMATED COMPLETION DATE <b>4 Sept. 1976</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAU	
TITLE OF PROJECT <b>Electrostatic Precipitators for Control of Fine Particulate Emissions</b> Program			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION Southern Research Institute 2000 9th Ave., S Birmingham, Ala. 35205			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
Electrostatic precipitators are commonly used to control particulate emissions from effluent gas streams. Application of electrostatic precipitators is hampered by lack of data on: collection efficiency as a function of particle size distribution and dust resistivity and electrostatic precipitator design and operating parameters; effects of mechanical factors on collection efficiency; dust resistivity as a function of ash and gas chemistry, etc. The contractor will conduct field tests, laboratory experiments, and theoretical studies to provide the needed data. The contractor will also develop instrumentation necessary to obtain the data.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center;">Dr. Sabert Oglesby</div>	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center;">4</div>	
PROJECT OFFICER <div style="text-align: center;">Leslie Sparks</div>		RESPONSIBLE ORGANIZATION <div style="text-align: center;">IERL-RTP / EPA</div>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$427,800	75		6/30/75
ESTIMATED COMPLETION DATE		ESTIMATED COMPLETION DATE	
12/30/76		12/30/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 7AAU	
TITLE OF PROJECT <b>Design and Fabrication of a Pilot-Scale Electrostatic Precipitator</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">INTERIM - final expected March '76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  An electrostatic precipitator can be described in terms of the system input variables and subfunctions. The complexity of the system precludes a detailed evaluation of each subfunction in full-scale precipitators operating on industrial processes because of both the costs and difficulty in controlling variables in industrial operations. Thus, it is desirable to construct a general purpose precipitator with sufficient flexibility to investigate the effects of modifications to individual system subfunctions. In addition, a pilot-scale precipitator provides the means for evaluating a computer systems analysis model for describing precipitator behavior. A preliminary computer model of an electrostatic precipitator system was developed and modified under previous contracts. In order to achieve these objectives, the contractor shall design and, upon approval of the design, fabricate a pilot-scale electrostatic precipitator.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		4	
PROJECT OFFICER		RESPONSIBLE ORGANIZATION	
G. H. Ramsey		IERL-RTP / EPA	
FUNDS OBLIGATED \$900 K Base \$1000 K Energy		F.Y. 75 NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
STARTING DATE Feb. 76 (Est.)		ESTIMATED COMPLETION DATE 6/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	
		EPA	
		77AAU	
TITLE OF PROJECT <b>Demonstration of High-Efficiency, High Throughput Baghouse</b> <b>on Industrial Boilers</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Mar. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK -</b> (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Fabric filtration has traditionally been one of the major methods of collecting particulate matter.</p> <p>Laboratory and field data have shown fabric filters to be extremely efficient even into the submicron range for a variety of sources (1, pp.6-103, 6-104). It has, however, been only in the last decade that serious attempts have been made to use baghouses on large combustion sources. The IERL-RTP is now engaged in measuring performance of baghouses on several utility and industrial boilers to confirm high efficiencies for flyash down to about 0.01µm.</p> <p>In order to expand the availability of fabric filtration for control of fine particulates, it is necessary to provide systems which can operate at air-to-cloth ratios greater than presently used, and to have fabrics that can be used at the higher ratios and are durable.</p> <p>During the past two years a fabric filter system has been developed operating at 4 to 5 times the usual air-to-cloth ratio of 2:1(2).</p> <p>The purpose of this effort is to prove the performance capabilities of the ESR filter system on a small utility boiler and thus provide operating and cost data for users and manufacturers, determine durability and effectiveness of new fabrics, find optimum operating conditions and determine scale-up factors for production filter systems.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		4	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER	
		J. H. Turner	
		RESPONSIBLE ORGANIZATION	
		IERL-RTP / EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$900 K Base	75		Feb. 76 (Est.)
\$1000 K Energy			ESTIMATED COMPLETION DATE
			12/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA  <b>77AAU</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation &amp; Development of Instrumentation for Process Control of Airborne Asbestos</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. R. C. Rossi, Section Manager</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>The Aerospace Corporation          2350 East El Segundo Blvd.          El Segundo, Calif. 90245</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objective of this grant is to develop methodology to measure the efficiency of devices collecting fibrous material such as asbestos. The development of the proposed techniques would enable particulate control specialists to quickly evaluate the performance of collectors applied to this source. Continued development should provide a device for process control by the manufacturer.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  	
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		DATE  	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 1.5em;">4</div>	
		PROJECT OFFICER <b>D. Bruce Harris</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED <b>\$50,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <div style="text-align: center;">one (1) 83</div>	STARTING DATE <b>01/18/74</b>
		ESTIMATED COMPLETION DATE <b>06/17/75</b>	



U.S. ENVIRONMENTAL PROTECTION AGENCY  <b>NOTICE OF RESEARCH PROJECT</b>		<i>Form Approved</i> OMB No. 158-R0081	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAU-04A</b>	
TITLE OF PROJECT <b>Preparation of a Guideline Document for Environmental Assessment of Energy Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Paul F. Fennelly, Arthur S. Werner</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>GCA Corp. GCA/Technology Div.          Burlington Rd.          Bedford, Mass. 01730</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The project will provide a guideline document that will serve as a basis for standardization of environmental assessment documents. It will contain in a unit operations format: a description of process operations involved; a definition of the potential environmental impact areas that need to be addressed; methodology for determining the magnitude of the impact for each energy system; and procedures for conducting environmental assessments. The document should enumerate: the specific methods which could be employed when conducting environmental assessments; the criteria to be utilized in assessing the magnitude of the environmental impacts; the methodology for determining potential interactions between the unit operations which may result in modified environmental impacts; and the environmental impacts of pollution control systems associated with any unit operation. The data base which is required to assess the potential environmental impacts of energy systems; the sources of data which the energy system developer should use in conducting environmental assessment studies; and the accuracy required in the environmental assessment studies will be defined.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
		DATE  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Internal) <input checked="" type="checkbox"/> NECESSARY FOR <input type="checkbox"/> RESEARCH		TASK NO.  <b>77AAU-04A</b>	
		PROJECT OFFICER <b>Ronald A. Venezia</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, CPB</b>	
FUNDS OBLIGATED <b>\$117,900</b>		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>N.A.</b>	
		STARTING DATE <b>28 Mar. 1975</b>	
		ESTIMATED COMPLETION DATE <b>3 Nov. 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77 AAU-04A</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation of "Guideline Document for Environmental Assessment of Energy Systems"</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Sidney Bourgeois, Morris M. Penny</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Lockheed Missiles and Space Co., Inc. Huntsville Research and Engineering Center P.O. Box 1103, Huntsville, Alabama 35807</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>This project is a critique of the "Guideline Document for Environmental Assessment of Energy Systems," and contains the following: (1) analysis of the scope, content, potential applicability and usefulness; (2) suggested additions and/or revisions, including standardization of data and other relevant information; (3) discussion of unresolved technical, administrative or other issues relative to environmental source assessment; (4) summary of major conclusions and recommendations. To effect this evaluation a preliminary environmental assessment of (1) Hydrogen Combustion, (2) Magnetohydrodynamics, and (3) Coal Liquefaction will be prepared.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>04A</b>  PROJECT OFFICER <b>Ronald A. Venezia</b> RESPONSIBLE ORGANIZATION <b>IERL, RTP, IPD, CPB /EPA</b>	
FUNDS OBLIGATED <b>\$47,900</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>N.A.</b>	STARTING DATE <b>22 May 1975</b> ESTIMATED COMPLETION DATE <b>3 Nov. 1975</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAU</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation of "Guideline Document for Environmental Assessment of Energy System"</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>P.E. Muehlberg, R.W. Barnes</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>DOW Chemical USA, Texas Div., Contract Research Bldg. A-1214 Freeport, Texas 77541</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>This project is a critique of the "Guideline Document for Environmental Assessment of Energy Systems," and contains the following: (1) analysis of the scope, content, potential applicability and usefulness; (2) suggested additions and/or revisions, including standardization of data and other relevant information; (3) discussion of unresolved technical, administrative or other issues relative to environmental source assessment; (4) summary of major conclusions and recommendations. To effect this evaluation a preliminary environmental assessment of Geothermal Energy Systems and Power Park Energy Systems will be prepared.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>4A</b>  PROJECT OFFICER <b>Ronald A. Venezia</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, CPB / EPA</b>	
FUNDS OBLIGATED <b>\$900 K Base \$100 K Energy</b>		F.Y. <b>75</b> NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>N.A.</b> STARTING DATE <b>6 May 1975</b> ESTIMATED COMPLETION DATE <b>3 Nov. 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		--Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAU	
TITLE OF PROJECT <b>Evaluation of Novel Devices</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  INTERIM - Final expected Dec. 75			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>Fine particle control from stationary sources is important from the standpoint of environmental protection. For the most part, fine particle control technology is now at a very early stage of development. Limited tests of conventional equipment (scrubbers, filters, electrostatic precipitators) have shown capability for collection of fine particulate where very high mass efficiencies are attained. However, to reach these high efficiencies, high energy input and/or large collector size is required. Novel devices or systems based on new collection principles or on radical redesign of conventional collectors are sometimes offered by private developers. This effort will provide for testing and evaluation of those devices which show promise for high efficiency collection of fine particulate.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		Dale L. Harmon RESPONSIBLE ORGANIZATION IERL-RTP / EPA	
TASK NO.		STARTING DATE	
5		Nov. 75 (Est.)	
FUNDING ORIGINATED		ESTIMATED COMPLETION DATE	
\$500 K Base \$500 K Energy		12/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAU	
TITLE OF PROJECT <b>Feasibility Demonstration of Nonwoven Double Mat Filters for Control of Fine Particle Emissions</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Principal Investigator: Michael A. Shackleton - Sr. Project Engineer Other Professional Personnel: Eugene E. Grassel - Sr. Research Chemist Robert E. Frey - Vice President Corporate Development & Technology, Torit Div. Ronald E. Sundberg - Research and Development Manager, Torit Div.			
NAME AND ADDRESS OF APPLICANT INSTITUTION Donaldson Company, Inc. P.O. Box 1299, 1400 W. 94 Street Minneapolis, Minnesota 55440			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">The objective of this work is to demonstrate the feasibility of a new filtration concept, "Nonwoven, Double Mat Filters," as an effective and economic technique for control of fine particle emissions.</p> <p style="margin-left: 40px;">The effort will show by analysis and testing of prototypes that the new concept is applicable to the control of fine particle emissions. Both the technical and economic limitations to commercial use will be identified.</p> <p style="margin-left: 40px;">This program will be a 24-month effort.</p> <p style="margin-left: 40px;">Reference Contract No. 68-02-1878.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  s/Michael A. Shackleton	
		DATE  17 July 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		5	
		PROJECT OFFICER D.C. Drehmel RESPONSIBLE ORGANIZATION IERL-RTP, UPID, PTB/ EPA	
FUNDS OBLIGATED  \$57,500	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  Unknown	STARTING DATE  1 July 1975
		ESTIMATED COMPLETION DATE  30 June 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77AAU	
TITLE OF PROJECT <b>Wind Tunnel Evaluation of Particle Sizing Instruments</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Forest Mixon</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Research Triangle Institute Post Office Box 12194 Research Triangle Park, N.C. 27709</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The contractor shall evaluate a group of particle sizing devices in EPA's wind tunnel. The number of devices to be evaluated shall not exceed ten and shall include, but not be limited to the following:  <ol style="list-style-type: none"> <li>1. Environmental Systems Corp., PILLS IV</li> <li>2. GCA Corp., Beta Impactor</li> <li>3. Brink Impactor</li> <li>4. Andersen Impactor</li> </ol> The contractor shall ensure that each device is operating properly and shall consult with the manufacturer if necessary. All devices to be evaluated shall be supplied by EPA.  The contractor shall develop a test matrix for evaluating the selected instruments for approval by the Task Officer. The test matrix shall consider levels of particulate concentration and types of particulate as well as the various instruments.  The contractor shall be responsible for:  <ol style="list-style-type: none"> <li>1. Developing the test matrix.</li> <li>2. Coordinating the testing with the operating contractor for the wind tunnel.</li> <li>3. Ensuring that the instruments are properly operated.</li> <li>4. Obtaining test particulate.</li> <li>5. Conducting the tests.</li> <li>6. Analysis of the data.</li> <li>7. Report of the results.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>W.B. Kuykendal</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB / EPA</b>	
<input type="checkbox"/> RESEARCH GRANT			
FUNDS OBLIGATED <b>\$500 K Base \$500 K Energy</b>		F.Y. <b>75</b>	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	
		STARTING DATE <b>6/9/75</b>	
		ESTIMATED COMPLETION DATE <b>10/15/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAU	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Control of Fine Particle Emissions</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Dr. D. H. Archer, Manager, Chemical Engineering Research Dr. B. W. Lancaster, Senior Engineer, Chemical Engineering Research Dr. D. F. Ciliberti, Senior Engineer, Chemical Engineering Research			
NAME AND ADDRESS OF APPLICANT INSTITUTION Westinghouse Research Laboratories Beulah Rd. Pittsburgh, Pa. 15235			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The Environmental Protection Agency seeks to demonstrate, on a small scale, the feasibility of new concepts for the control of fine particle emissions.  Horizons, Inc. has developed a unique porous ceramic membrane with controlled pore size and superior mechanical properties. A review of the available information on this material made by the Westinghouse Electric Corporation shows that it has the potential for development into a high-efficiency dust collection filter. While the material has a broad range of potential application, it is uniquely suitable for fine particle control in high temperature, high pressure processes where its mechanical strength and chemical inertness are particularly valuable. As a consequence, it may find widespread acceptance in coal conversion processes now under development - coal gasification and fluidized bed combustion are of particular interest.  The Westinghouse Electric Corporation in a cooperative program with Horizons, Inc. is developing and testing ceramic filter elements manufactured from porous alumina membranes. The program is directed primarily toward particulate control in coal gasification - combined cycle power plants - an area in which there is urgent need for adequate particle collection equipment.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  NA		SIGNATURE OF PRINCIPAL INVESTIGATOR  David H. Archer	
		DATE  18 July 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  5	
		PROJECT OFFICER D. C. Drehmel RESPONSIBLE ORGANIZATION IERL-RTP/EPA	
FUNDS OBLIGATED \$181,363	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 6/30/75
		ESTIMATED COMPLETION DATE 6/30/77	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAU</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Fine Particle Scrubbing by High Gradient Magnetic Separation (HGMS)</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. F. O. Mixon, Manager</b> <b>Process Engineering Department</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Research Triangle Institute</b> <b>Research Triangle Park, N.C.</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The objective of this project is to demonstrate on a small scale the feasibility of using a high gradient magnetic separation (HGMS) system as an effective and economic technique for control of fine particulate emissions. Phase I of the project will include a review of the theoretical concepts of HGMS as applied to fine particle collection with emphasis on collection efficiency, collector regeneration, and power and residence time requirements. Bench scale experiments will follow to verify or disprove the theoretical predictions. A preliminary analysis of capital and operating costs will be performed to compare the system to conventional equipment, i.e., scrubbers, electrostatic precipitators or fabric filters. If the results obtained in Phase I are technically and economically attractive, Phase II will consist of the design, construction and operation of an experimental model of at least 500 cfm capacity to obtain additional information on the performance of the HGMS system with respect to power input, residence time, temperature, particulate type, and particulate size distribution.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>5</b>  PROJECT OFFICER <b>D.C. Drehmel</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, UPID, PTB / EPA</b>	
FUNDS OBLIGATED <b>\$111,100</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>1 July 1975</b> ESTIMATED COMPLETION DATE <b>30 June 1977</b>



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)  SSIE EPA <b>77AAU</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Mobile Bed Flux Force/Condensation Scrubber for Collection of Fine Particles</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;">INTERIM - final expected Oct. '75</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p>A new class of scrubbers (Flux Force/Condensation or FF/C Scrubbers) which take advantage of diffusiophoresis and particle growth due to water vapor condensation is being developed under EPA contracts. Previous studies have proven the feasibility of FF/C scrubbing. Recent data on the performance of mobile bed scrubbers indicate that a mobile bed scrubber may be an efficient FF/C scrubber. Because mobile bed scrubbers are commonly used in SO<sub>x</sub> scrubbing systems, it is important to determine if such scrubbers can be used as FF/C scrubbers to collect fine particles. The collection of SO<sub>x</sub> and fine particles in a single device would be a major advance.</p> <p>The purpose of this study is to evaluate mobile bed scrubbers for use as flux force/condensation scrubbing devices and to develop mathematical models and design equations for such scrubbers. This will be accomplished by conducting theoretical and small pilot plant studies of mobile bed flux force/condensation scrubbers.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		5	
		PROJECT OFFICER <b>Leslie E. Sparks</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED <b>\$500 K Base</b> <b>\$500 K Energy</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Sept. 75 (Est.)</b>
		ESTIMATED COMPLETION DATE <b>12/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAU	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Test &amp; Evaluation Program for Selection, Testing, &amp; Evaluation of Fine Particulate Control Devices &amp; Modification of IERL Aerodynamic</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Test Chamber (Wind Tunnel)</b>  <b>Mr. F. E. Moreno, Eng. Systems Department; Manager, Environmental Eng. Program / Mr. J. J. Reese, Engineering Dept.; Senior Project Engineer / Mr. D. R. Blann; Leader, Systems Design Section / Dr. N. A. Jaffe; Manager, Advanced Programs</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Acurex Corporation / Aerotherm Division          485 Clyde Avenue          Mountain View, California 94042</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Objectives:</b> Design, fabricate, install, perform demonstration tests, and provide a research program for a fine particulate cleanup device evaluation facility to be included as a modification to the EPA Industrial Environmental Research Laboratory Aerodynamic Test Chamber.  <b>Approach:</b> The existing facility will be modified by the addition of a 2500 cfm humidity, temperature, and pressure controlled test leg. Pneumatic dust transport and slurry handling equipment will be installed to treat particulate collected by whatever wet and dry devices are evaluated. Appropriate instrumentation and equipment will be included for proper system control and monitoring.  <b>Current Plans:</b> A preliminary system design will be generated and reviewed before a final design is generated for construction purposes. Concurrently, the research and development program will begin with a determination of appropriate wet and dry particulate removal devices for use with this facility.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
		DATE  <b>July 16, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <div style="border: 1px solid black; padding: 2px;"><input type="checkbox"/> AGENCY STAFF (Intramural)</div> <div style="border: 1px solid black; padding: 2px;"><input checked="" type="checkbox"/> NEGOTIATED CONTRACT</div> <div style="border: 1px solid black; padding: 2px;"><input type="checkbox"/> RESEARCH GRANT</div>		TASK NO. <div style="border: 1px solid black; text-align: center; padding: 5px;"><b>6</b></div> PROJECT OFFICER <b>Dale Harmon</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED F.Y. <div style="border: 1px solid black; padding: 2px;"><b>100,000      75</b></div>		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <div style="border: 1px solid black; height: 20px; width: 100%;"></div> STARTING DATE <b>6/30/75</b> ESTIMATED COMPLETION DATE <b>8/30/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT <b>Shawnee Lime/Limestone Scrubbing Advanced Test Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Air Quality Group of the Process Technology Department</b> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>G.H. Dyer - Dept. Mgr.</div> <div>M. Epstein - Project Mgr.</div> <div>S. Wang - Project Eng.</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>R.M. Sherwin - Group Mgr.</div> <div>D.A. Burbank - Site Mgr.</div> <div>C.C. Leivo - Asst. Site Mgr.</div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Bechtel Corporation - Scientific Development Operations</b> <b>P.O. Box 3965</b> <b>San Francisco, California 94119</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>Based on the results of the Phase III Test Program under predecessor Contract PH 22-68-67, and other supporting programs of EPA, Bechtel is performing an extended testing program at the EPA Alkali Scrubbing Test Facility, TVA Shawnee Steam Plant, Paducah, Kentucky, for the removal of SO<sub>2</sub> and ash particulate from coal-fired furnace gas. The test facility consists of two parallel scrubber systems - a venturi followed by a spray tower and a Turbulent Contact Absorber. Each system is capable of treating approximately 10 Mw equivalent (30,000 acfm at 300° F) of flue gas containing 1800-4000 ppm sulfur dioxide and 2 to 5 grains/scf of particulates. The scrubbers are integrated into the flue gas exhaust ductwork of boiler No. 10.</p> <p>The major goals of the overall test program are: (1) to characterize the effect of important process variables on sulfur dioxide and particulate removal, (2) to develop mathematical models for economic scale-up to full-size scrubber facilities, and (3) to demonstrate reliability.</p> <p>The process improvement objectives of the current program are to improve (1) alkali utilization, (2) SO<sub>2</sub> removal, (3) sludge disposal properties, and (4) system reliability. Specific tasks to be performed are: limestone/lime advanced testing, sludge fixation studies, and economic studies.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <div style="text-align: center;">N/A</div>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center;">s/Michael Epstein</div>	
DATE  <div style="text-align: center;">9-17-75</div>			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 1.2em;">A-1</div>	
		PROJECT OFFICER <b>John E. Williams</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, E/ETB / EPA</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$907 K	75	2	6/29/74
		ESTIMATED COMPLETION DATE	
		6/30/77	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT <b>Studies of SO<sub>2</sub> Wet Scrubbing Utilizing EPA Research Model Scrubber</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>R.E. Opferkuch, Project Manager</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Monsanto Research Corp. 1515 Nicholas Road Dayton, Ohio 45407</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>Model lime and limestone scrubbers are operated at NERC/RTP to provide in-house research capability in the FGD area. The scrubbers are designed for maximum flexibility and quick evaluation of a wide range of process variables and operating conditions. The work is centered upon identification of optimum scrubber operating conditions for application to utilities using high-sulfur U.S. Eastern coals.</b> <b>Objectives:</b> (1) to provide in-house experimental support for EPA's Shawnee Test Facility at Paducah, Kentucky; (2) compare lime and limestone as scrubber feeds for non-regenerable systems; (3) define operating variables and process chemistry affecting reliability; (4) improve utilization of limestone; (5) optimize performance in terms of SO <sub>2</sub> scrubbing efficiency and additive utilization; (6) evaluate merit of advanced concepts and process improvements for further study in larger prototype units. <b>Approach:</b> Two 9-inch diameter TCA scrubbers are operated on a 24-hr. basis. Each set-up includes all components of a complete closed-loop system. They can be operated with or without flyash and chlorides and at varying inlet SO <sub>2</sub> concentrations. Hold tank and tower designs are variable. <b>Current Plans and Progress:</b> Principal process parameters affecting operation in the unsaturated mode have been defined. Work in this area is continuing toward the objective of totally scale-free operation. Systematic comparison of hold tank designs have shown that high utilization of limestone can be obtained concurrently with high SO <sub>2</sub> removal efficiency. Work in this area is continuing toward the objective of a system that yields fully-oxidized waste sludge. Several methods of carrying out the oxidation step are being investigated. Future work will evaluate different types of lime/limestone additives and methods of controlling stoichiometry and maximizing SO <sub>2</sub> removal efficiency.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>May 7, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>A-3</b>  PROJECT OFFICER <b>Robert H. Borgwardt</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, N.C. 27711 / EPA</b>	
FUNDS OBLIGATED <b>\$425,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>2</b>	STARTING DATE <b>7/1/74</b>
		ESTIMATED COMPLETION DATE <b>7/1/77</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77AAZ	
TITLE OF PROJECT <b>Louisville Gas and Electric Full-Scale Scrubber Testing and Waste Disposal Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Mar. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK -</b> (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Recent results from small- and large-scale EPA pilot plant tests of lime/limestone scrubbing (for SO<sub>2</sub> removal from power plant flue gas) have shown that under certain conditions lime/limestone systems can operate unsaturated with respect to dissolved gypsum. This operating mode has also been reported in tests of the full-scale carbide lime scrubbing system at Louisville Gas and Electric's Paddy's Run Station. This system is perhaps the most successful of its type in the U. S., possibly because of the unsaturated (in gypsum) operation, the physical design of the system, or a combination of the unsaturated operation and system design.</p> <p>Louisville Gas and Electric (LG&amp;E) has expressed a willingness to make their system available to EPA for a series of tests to increase the understanding of the system and to broaden the applicability of the system design and operation to other power plant installations.</p> <p>The purpose of this program is to: (a) Characterize the performance, reliability, and chemistry of the LG&amp;E lime scrubbing system installed at Paddy's Run Unit No. 6, (b) Perform a series of scrubbing tests to increase the understanding of the LG&amp;E system and to broaden its applicability to other power plant SO<sub>2</sub> scrubbing applications. These tests will include use of commercial lime, variation in boiler load, addition of chloride (and possibly magnesium), and variation in hold tank operation, (c) Evaluate scrubber waste disposal operations through laboratory and field tests of several treatment/disposal methods, with emphasis on methods not currently offered commercially.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		Julian W. Jones	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
		IERL-RTP / EPA	
FUNDS OBLIGATED		STARTING DATE	
\$950 K		Feb. 76 (Est.)	
F.Y.		ESTIMATED COMPLETION DATE	
75			
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAZ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Engineering and Analytical Support for the Louisville Gas &amp; Electric Scrubber Testing Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Radian Corporation P. O. Box 9948 Austin, Texas 78766</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The purpose of this project is to prepare a detailed plan for a test program designed to characterize the performance, reliability, and chemistry of the LG&E lime scrubbing system installed at Paddy's Run Unit No. 6. The project will provide engineering and analytical support necessary to successfully perform a series of the LG&E system and to broaden its applicability to other power plant SO <sub>2</sub> scrubbing applications. These tests will include use of commercial lime, variation in boiler load, addition of chloride (and possibly magnesium), and variation in hold tank operation. Finally, the study will characterize, using the test data, important chemical reactions taking place in various system streams and vessels, will relate these reactions to basic design and operating parameters of lime scrubbing systems so that performance of the LG&E system will be generally applicable.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>J. L. Phillips</b>	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>A-5</b>  PROJECT OFFICER <b>Julian Jones</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED  <b>\$187,000</b>	F.Y.  <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE  <b>6/06/75</b>
		ESTIMATED COMPLETION DATE  <b>5/05/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA 77AAZ-05 77ABA-08	
TITLE OF PROJECT <b>Louisville Gas and Electric Full-Scale Scrubber Testing and Waste Disposal Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Mar. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b></p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Recent results from small- and large-scale EPA pilot plant tests of lime/limestone scrubbing (for SO<sub>2</sub> removal from power plant flue gas) have shown that under certain conditions lime/limestone systems can operate unsaturated with respect to dissolved gypsum. This operating mode has also been reported in tests of the full-scale carbide lime scrubbing system at Louisville Gas and Electric's Paddy's Run Station. This system is perhaps the most successful of its type in the U. S., possibly because of the unsaturated (in gypsum) operation, the physical design of the system, or a combination of the unsaturated operation and system design.</p> <p>Louisville Gas and Electric (LG&amp;E) has expressed a willingness to make their system available to EPA for a series of tests to increase the understanding of the system and to broaden the applicability of the system design and operation to other power plant installations.</p> <p>The purpose of this program is to: (a) Characterize the performance, reliability, and chemistry of the LG&amp;E lime scrubbing system installed at Paddy's Run Unit No. 6, (b) Perform a series of scrubbing tests to increase the understanding of the LG&amp;E system and to broaden its applicability to other power plant SO<sub>2</sub> scrubbing applications. These tests will include use of commercial lime, variation in boiler load, addition of chloride (and possibly magnesium), and variation in hold tank operation, (c) Evaluate scrubber waste disposal operations through laboratory and field tests of several treatment/disposal methods, with emphasis on methods not currently offered commercially.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		77AAZ-05	
<input type="checkbox"/> RESEARCH GRANT		77ABA-08	
		PROJECT OFFICER <b>Julian W. Jones</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP /EPA</b>	
FUNDS OBLIGATED <b>AAZ-200K</b> <b>ABA 750 K</b>		F.Y. <b>75</b>	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
		STARTING DATE <b>Feb. 76 (Est.)</b>	
		ESTIMATED COMPLETION DATE	







U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAZ</b>	
TITLE OF PROJECT <b>Full-Scale Double-Alkali Flue Gas Desulfurization Demonstration</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>INTERIM - Final expected June 76</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>As part of the demonstration program carried out under provisions of the Clean Air Act Amendments of 1970, EPA has undertaken the demonstration of several flue gas desulfurization (FGD) processes on a scale that approximates a single train of a full-scale, multi-train, commercial installation. The recently approved program for accelerated energy-related research and development within EPA includes funds for double-alkali FGD Demonstration System. It is intended that the resulting system be capable of high SO<sub>2</sub> removal efficiencies and produce environmentally acceptable wastes. The purpose of this effort is to provide for the demonstration of a full-scale double-alkali process having significant advantages over currently available technology.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>A-8</b>	
		PROJECT OFFICER <b>Norman Kaplan</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP</b>	
FUNDS OBLIGATED <b>\$4392 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>May 76 (Est.)</b>
		ESTIMATED COMPLETION DATE <b>1/79</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAZ</b>	
TITLE OF PROJECT <b>Double Alkali Test Program on Non-Utility Boiler</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Project Director - Dr. Charles R. La Mantia Contract No. 68-02-1332 (T.O. 3811)			
NAME AND ADDRESS OF APPLICANT INSTITUTION Arthur D. Little, Inc. 20 Acorn Park Cambridge, Massachusetts 02140			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <u>Objective and Scope of Project:</u>  This project will characterize the performance of the double alkali SO <sub>x</sub> control system designed by General Motors (GM) and installed on their industrial boiler system at the Chevrolet/Cleveland plant. This task will be accomplished by designing and participating in a test program at the GM facility which will provide information on SO <sub>x</sub> removal capability, process reliability, sulfate control, waste product characteristics, loss of soluble material from the system, and lime yield and utilization of other chemicals. The test program will include conduct of material balances on the overall system and its important component parts.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE  17 Sept. 1975	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		Norman Kaplan	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
		IERL-RTP, UIPD, EETB	
FUNDS OBLIGATED <b>\$26,600</b>		F.Y. <b>75</b>	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	
		STARTING DATE <b>Jan. 1974</b>	
		ESTIMATED COMPLETION DATE <b>Oct. 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT <b>Revision and Issuance of Final Report of Sulfur Oxide Throwaway Sludge Evaluation Panel (SOTSEP)</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  R. Murray Wells, Project Manager			
NAME AND ADDRESS OF APPLICANT INSTITUTION Radian Corporation P.O. Box 9948 Austin, Texas 78766			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies sup- porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <u>Background</u>  EPA prepared the initial draft of Sulfur Oxide Throwaway Sludge Evaluation Panel (SOTSEP) Final Report in September 1973. A significant amount of information contained in the report, especially cost data, is currently out of date. This information should be reviewed and updated prior to formal issuance of the report. Radian Corporation provided considerable technical assistance in preparation of the initial draft of the report. In this project Radian Corporation will review and revise (update) Volume I (Executive Summary) and Volume II (Technical Discussion Supplement) of the SOTSEP Final Report.  <u>Scope of Work</u>  Radian Corporation shall review and revise both volumes of the SOTSEP Final Report, to insure that: (a) all information contained in the report is as current as possible and that (b) the two volumes of the report are consistent. In updating the information in the report Radian shall rely heavily on readily available information from EPA (NERC-RTP) and Radian's files.  Radian Corporation shall also revise the report according to EPA direction based on an EPA editorial review of the report.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  R. Murray Wells	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  AGENCY STAFF (Intramural)  <input checked="" type="checkbox"/> NEGOTIATED CONTRACT  RESEARCH GRANT		TASK NO.  A-11  PROJECT OFFICER Julian W. Jones RESPONSIBLE ORGANIZATION IERL-RTP, UIPD, EETB/EPA	
FUNDS OBLIGATED \$21,300	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. None	STARTING DATE Jan. 75
		ESTIMATED COMPLETION DATE April 75	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT    Application of the Chemico-Basic Magnesia Slurry SO <sub>2</sub> Recovery Process to a Coal Fired Boiler			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. George R. Koehler, Project Director Dr. Asim B. Ray, Chief Chemist Edward Dober, Process Engineer			
NAME AND ADDRESS OF APPLICANT INSTITUTION Chemico Air Pollution Control Company One Penn Plaza New York, New York 10001			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-left: 40px;"> <b>Objective:</b> Demonstration of the magnesia slurry SO<sub>2</sub> recovery process for flue gas desulfurization to a coal fired boiler.   <b>Approach:</b> A full scale, prototype system including a first stage particulate control scrubber and a second stage F.G.D. venturi absorber has been installed on the 195 MW coal fired No. 3 boiler at Potomac Electric Power Company's Dickerson Station. Magnesia regeneration is accomplished at a 50 TPD sulfuric acid plant with SO<sub>2</sub> recovery as 98% sulfuric acid.   <b>Progress:</b> The pre-startup and planned operational testing phase of the program have been completed successfully with 1468 hours of operation of the FGD system. Previously developed prediction equations for oil fired application are being revised to include coal fired information. The unit is presently operating and will continue until MgO remaining at the power plant has been exhausted. Based upon a consumption rate of 10 tons/day, operation should continue for another two weeks. </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  None		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE 17 Sept. 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  b.1  PROJECT OFFICER C.J. Chatlyne RESPONSIBLE ORGANIZATION IERL-RTP/ EPA	
FUNDS OBLIGATED \$466,371	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 21 Feb. 1975
		ESTIMATED COMPLETION DATE Dec. 1975	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <div style="text-align: center; font-weight: bold; font-size: 1.2em;">77AAZ</div>	
TITLE OF PROJECT <div style="text-align: center; font-weight: bold; font-size: 1.2em;">MgSO<sub>3</sub> Hydrate Formation Mechanism</div>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Dr. Phillip Lowell, Principal Scientist</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Radian Corporation 8500 Shoal Creek Blvd. Austin, Texas 78766</div>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>Objective:</b> It has been the experience in magnesia scrubbing that the two hydrate species of MgSO<sub>3</sub> (tri- and hexa-) have been formed. Since these two species have vastly different handling characteristics, it would be an advantage to be able to design a scrubbing system to preferentially produce one of the two and thus design the handling system accordingly. Thus it is the objective to develop an understanding of the formation mechanism of the two hydrates and to recommend design or operating factors for the production of the desired crystal species.</p> <p><b>Approach:</b> The contractor will conduct a literature survey and will experimentally determine: (a) solubility products of the two hydrates as a function of temperature, (b) the influence of solution composition on the transition temperature of the phase change, and (c) the influence of composition and temperature on the kinetics of the phase change.</p> <p><b>Progress:</b> The literature survey has been completed. Construction of experimental equipment is on schedule and should be completed by the end of September.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <div style="font-weight: bold; font-size: 1.2em;">17 Sept. 1975</div>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		C.J. Chatlynne	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		IERL-RTP / EPA	
TASK NO. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B. 1</div>			
FUNDS OBLIGATED <div style="font-weight: bold; font-size: 1.2em;">82,500</div>	F.Y. <div style="font-weight: bold; font-size: 1.2em;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <div style="text-align: center; font-weight: bold; font-size: 1.2em;">7/75</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center; font-weight: bold; font-size: 1.2em;">2/76</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAZ</b>	
TITLE OF PROJECT <b>Feasibility of Producing Sulfur from MgSO<sub>3</sub></b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Phillip S. Lowell, Principal Scientist</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Radian Corporation 8500 Shoal Creek Blvd. Austin, Texas 78766</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-left: 40px;"> <p><b>Objective:</b> EPA has supported two Mag-Ox scrubbing demonstration; in each case sulfuric acid was produced. One option for increasing the applicability of the process is the direct reduction/decomposition of MgSO<sub>3</sub> to elemental sulfur and MgO. The study of the feasibility of this process option is the objective of this task.</p> <p><b>Approach:</b> The contractor is performing a literature survey on the following topics: chemistry of the Mg/O/S system, process technology, and kinetic data. He will then perform equilibrium calculations, develop possible process arrangements, and calculate heat and material balances. Finally, kinetic calculations will be performed and recommendations made.</p> <p><b>Progress:</b> The literature survey and most of the equilibrium calculations have been completed. Work has just begun on developing process arrangements. Heat and material balances and kinetic calculations will soon be initiated. The final report draft is expected in November.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>B-2</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>C.J. Chatlyne</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDS OBLIGATED <b>\$190 K</b>		F.Y. <b>75</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		STARTING DATE <b>April 1975</b>	
ESTIMATED COMPLETION DATE <b>Nov. 1975</b>		ESTIMATED COMPLETION DATE <b>Nov. 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT <b>Test and Evaluation of the Northern Indiana Public Service Co./Wellman/Allied Demonstration Plant</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  R. C. Adams Reginald Jordan			
NAME AND ADDRESS OF APPLICANT INSTITUTION  TRW, Inc. 800 Fallin Lane, SE Vienna, Va. 22180			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  TRW, Inc. will furnish the necessary personnel, materials, services, equipment, facilities and otherwise do all things necessary for or incident to the performance of the three major tasks described below:  1. Preparation of Demonstration Test Plan - TRW Inc. will prepare and submit for approval a Demonstration Test Plan based on the preliminary plans contained in Sections 4.1, 4.2, 4.5 and 4.6 of the Work Plan Manula - Test and Evaluation Program for the NIPSCO/DAVY/ALLIED Demonstration Plant, dated 31 August 1973. The Demonstration Test Plan will include a thorough discussion of test parameters, sampling methods, instrumentation, analytical methods, schedule, manpower, costs, data collection, reduction, and presentation. Installation and checkout of test measurements equipment, which was initiated under Task 18 of Contract No. 68-02-0235, will be continued during preparation of the Demonstration Test Plan.  2. Perform Acceptance Test - TRW Inc. will obtain acceptance test measurements during the one-year demonstration operation of the WELLMAN-LORD/ALLIED system at NIPSCO. The procedures, methods, schedules, etc., will be in accordance with the approved Acceptance Test Plan prepared during Task 16 to Contract No. 68-02-0235.  3. Perform One-Year Demonstration Test - TRW Inc. will obtain test measurements during the one year demonstration operation of the WELLMAN-LORD/ALLIED system at NIPSCO. The procedures, methods, schedules, etc. will be in accordance with the approved Demonstration Test Plan prepared during Task I of this contract. TRW Inc. will collect, reduce and evaluate demonstration data and prepare a report which will serve as a final report for the WELLMAN-LORD Demonstration Program.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N.A.		SIGNATURE OF PRINCIPAL INVESTIGATOR   DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  B-5  PROJECT OFFICER Roger C. Christman RESPONSIBLE ORGANIZATION IERL-RTP / EPA	
FUNDS OBLIGATED \$500,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 3/03/75
		ESTIMATED COMPLETION DATE 9/03/77	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT <b>Technical Support to the 1MW Pilot Investigation of Ammonia Scrubbing/ABS Regeneration</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Doug Van Osdell, Chemical Engineer</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <div style="text-align: center; padding: 10px;">Research Triangle Institute Research Triangle Park, N.C. 27711</div>			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p style="text-align: center; padding: 10px;">The objective of this project is to provide technical support to the TVA/EPA 1 MW pilot investigation of ammonia scrubbing - ammonium bisulfate regeneration at TVA's Colbert Station near Muscle Shoals, Alabama.</p> <p style="text-align: center; padding: 10px;">In achieving the technical objective, the contractor will:</p> <ol style="list-style-type: none"> <li>(1) Maintain current information on technical developments in the pilot study.</li> <li>(2) Review and evaluate proposed designs, design modifications, operational changes, test programs and schedules, and test results.</li> <li>(3) Recommend design, operational, and/or test options to improve the operation/evaluation of the process.</li> <li>(4) Assist in defining the significance and potential impact of specific process problems.</li> <li>(5) Report on a monthly basis all findings/recommendations; submit a final report summarizing the total program.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N.A.		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE  17 Sept. 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>Wade H. Ponder</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD/PTB / EPA</b>	
<input type="checkbox"/> RESEARCH GRANT		B-6	
FUNDS OBLIGATED <b>\$59,200</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>7/75</b>
		ESTIMATED COMPLETION DATE <b>1/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAZ</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Technologies and Equipment for Production of Reductant Gases from Materials other than Natural Gas</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Doug Hissong K.S. Murthy</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Battelle Columbus Laboratories 505 King Ave. Columbus, OH 43201</b>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The project involves an evaluation of the feasibility of using substances other than natural gas to accomplish the reduction of SO<sub>2</sub> to elemental sulfur. The intended application of this technology is to future regenerable, sulfur-producing flue gas desulfurization (FGD) installations at power plants. The alternate sources of reductants include coal, coke, and residual oil. These materials can be gasified to produce a reducing gas containing hydrogen and carbon monoxide.</p> <p>The objectives of this project are:</p> <ol style="list-style-type: none"> <li>(1) To obtain data on the detailed analysis of reductant gases from the leading coal gasifiers and to assess the impact of the various gas constituents on the overall process schemes which lead to an elemental sulfur product.</li> <li>(2) To examine further the equipment requirements for the production and use of coal gas as a reductant, with particular attention to the gas clean-up requirements which follow from the accomplishment of Objective 1. Attention will be given to such auxiliary equipment as that for coal handling and sizing, ash handling, and wastewater treatment.</li> <li>(3) To revise and improve earlier cost estimates for the alternate reductants based upon the results from the accomplishment of Objectives 1 and 2.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Sept. 17, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>B-8</b>  PROJECT OFFICER <b>Roger Christman</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, PTB/EPA</b>	
FUNDS OBLIGATED <b>\$76,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>8/75</b>  ESTIMATED COMPLETION DATE <b>3/76</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAZ</b>	
TITLE OF PROJECT <b>Advanced Flue Gas Desulfurization Demonstration</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px 0;">Interim - final expected June 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>As part of the demonstration program carried out under provisions of the Clean Air Act Amendments of 1970, EPA has undertaken the demonstration of several flue gas desulfurization (FGD) processes on a scale that approximates a single train of a full scale, multi-train, commercial installation. The accelerated energy-related program within EPA includes funds for an advanced FGD demonstration system. It is intended that the system produce elemental sulfur as its primary product, be capable of high SO<sub>2</sub> removal efficiencies, and utilize a reductant material other than natural gas.</p> <p>The purpose of this effort is to provide for the demonstration of an advanced flue gas desulfurization process having significant advantages over currently available technology. The system to be provided will be capable of producing elemental sulfur, be capable of high SO<sub>2</sub> removal efficiencies, and utilize reductants other than natural gas.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>Roger C. Christman</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>IERL-RTP / EPA</b>	
TASK NO.			
<b>B-9</b>			
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$5785 K</b>	<b>75</b>		<b>May 76 (Est.)</b>
			ESTIMATED COMPLETION DATE

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>7 7AAZ</b>	
TITLE OF PROJECT <b>Assessment of the Cat-Ox Demonstration Project</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>John A. Manning, Research Specialist</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>DOW Chemical Freeport, Texas 77541</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objective of this task is to assess repair/refurbishment options at the Cat-Ox installation at Illinois Power's Wood River Station and to estimate both time and funds required to return the FGD system to operating condition by implementing these options.</p> <p>Flow sheets, drawings, the design manual, etc. will be reviewed to determine initial materials of construction and composition of corrosive streams at key points. Corrosion literature and experience with metallic and non-metallic materials of construction in this and similar SO<sub>2</sub>, SO<sub>3</sub> and sulfuric acid environments will be reviewed. Operational procedures as they may have affected corrosion will be discussed with process supplier and process operator. Site visits and inspections utilizing non-destructive test techniques are planned to determine actual plant condition. Specific recommendations for repairs and/or replacement, including estimates of time and cost for such repairs will be made. Several different levels of repair will be included.</p> <p>This 5 month task is just getting started. Contractor orientation was completed late August and initial site visit is scheduled for September 17, 1975.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>B-12</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>C.J. Chatlynne</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED <b>\$26,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Aug. 75</b>
		ESTIMATED COMPLETION DATE <b>Dec. 75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAZ</b>	
TITLE OF PROJECT <b>Utility FGD Technology Status</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Project Manager - Timothy W. Devitt Contract No. 68-02-1321 (T.O. 6)			
NAME AND ADDRESS OF APPLICANT INSTITUTION PEDCo Environmental Specialists, Inc. Suite 13, Atkinson Square Cincinnati, Ohio 45246			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The objective of this task is to provide assistance to the IERL in the collection and dissemination of information and data on the status of flue gas desulfurization in the United States.  In achieving the objective, the contractor will:  1. prepare a project work plan according to the IERL Project Management System and the Project Officer's specifications, 2. compile a list of all FGD systems installed or projected in the U.S., 3. prepare a checklist specifying data to be obtained during plant surveys, 4. prepare an individual plant survey form, 5. develop a card file type information retrieval system making information available under key words, 6. assist IERL with the preparation of OMB clearance forms, 7. conduct surveys of existing FGD systems, 8. conduct surveys of facilities where FGD are to be installed, and 9. submit complete report of status of installed and projected FGD systems periodically.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>C-1</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Norman Kaplan</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, EETB/EPA</b>	
FUNDS OBLIGATED <b>\$73,400</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>Mar. 1974</b>
			ESTIMATED COMPLETION DATE <b>Continuing Effort</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAZ</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation of Relative Impact of SO<sub>x</sub> Emissions from Utility and Non-Utility Combustion Sources on Ambient Air Quality</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Tim Devitt, VP, PEDCo - Environmental, Inc. Robert Stephens, Engineer, PEDCo - Environmental, Inc. Robert Amick, Engineer, PEDCo - Environmental, Inc.			
NAME AND ADDRESS OF APPLICANT INSTITUTION PEDCo - Environmental, Inc. Cincinnati, Ohio			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objective of this project is to assess the relative impact of SO<sub>x</sub> emitted from utility and non-utility combustion sources on SO<sub>x</sub> ambient air quality.</p> <p>The use of high sulfur fuels plus the large number of non-utility combustion sources serve to indicate the importance of considering SO<sub>x</sub> emissions from these sources since they may be major contributors to SO<sub>2</sub> levels which exceed the NAAQS. It is the purpose of this task to assess the relative impact of SO<sub>x</sub> emitted from utility and non-utility combustion sources on SO<sub>x</sub> ambient air quality in order to prepare a generic model for assessment of these relative impacts. The basic approach will be to gather and analyze existing air quality and emission data from selected regions and to extrapolate these results for more extensive use. This project is related to project RPS -</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <div style="text-align: center;">N/A</div>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center;">17 Sept. 1975</div>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center;">C-4</div>	
FUNDS OBLIGATED <div style="text-align: center;">\$50 K</div>		F.Y. <div style="text-align: center;">75</div>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		STARTING DATE <div style="text-align: center;">4/75</div>	
ESTIMATED COMPLETION DATE <div style="text-align: center;">12/75</div>		PROJECT OFFICER <div style="text-align: center;">Wade H. Ponder</div>	
RESPONSIBLE ORGANIZATION <div style="text-align: center;">IERL-RTP, UIPD, PTB/ EPA</div>			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA	
TITLE OF PROJECT		<b>77AAZ-</b>	
<p><u>Advisory Service on Scale-Up of A.P. Control Processes</u></p> <p>GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.</p>			
<p>NAME AND ADDRESS OF APPLICANT INSTITUTION</p> <p>National Academy of Sciences 2101 Constitution Ave. Washington, D. C. 20418</p>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The National Academy of Engineers (NAE) has previously reviewed and advised the EPA on matters relating to air pollution control processes for the control of sulfur oxides, nitrogen oxides, particulates and other emissions from stationary source by means of Ad Hoc panels which operate within the frame of the parent panel. At the EPA's request these panels review the overall National R&amp;D effort for controlling air pollution from stationary sources to ensure that the Federal program best meets the national needs.</p> <p>The purpose of this project is to provide NAE advisory services to the EPA for the assessment of current and future aspects of sulfur oxide control methods and strategies.</p> <p>The study will: 1) identify sulfur oxide sources; 2) evaluate the current status of control technology, alternative strategies, economics, and process maturity; 3) assess the adequacy of the control technology data base and suggest work to fill-in the identified gaps; 4) suggest uniform estimated process costing methods; and 5) identify resources required for various rate of application of technology and strategy for control of sulfur oxides emissions from stationary combustion and industrial process sources.</p> <p>The study will be conducted by the Committee on Air Quality Management of the National Research Council, Division of Engineering (Commission on Sociotechnical Systems), assisted by ad hoc panels as required to provide in-depth studies of each area of interest.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		R. W. Crozier	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		C-6	
<input type="checkbox"/> RESEARCH GRANT		R. E. Harrington	
		RESPONSIBLE ORGANIZATION	
		IERL-RTP / EPA	
FUNDS OBLIGATED		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
\$200,000		75	
		STARTING DATE	
		12/30/74	
		ESTIMATED COMPLETION DATE	
		12/30/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0051	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAZ	
TITLE OF PROJECT <b>Power Plant Plume and Sulfate Study in Complex Terrain</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. John L. Swift, Vice Pres./Office of Environmental Mgmt. (Project Manager) Robert C. Koch, Sr. Research Scientist, Office of Environmental Mgmt. (Principal Invest.) Douglas J. Pelton, Research Scientist, Office of Environmental Mgmt. (Director/Field Operations) Paul H. Hwang, Research Scientist, Office of Environmental Mgmt. (Sr. Meteorologist)			
NAME AND ADDRESS OF APPLICANT INSTITUTION GEOMET, Incorporated 15 Firstfield Road Gaithersburg, Md. 20760			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>1.0 Objectives:</b> (1) Creation of reliable data describing atmospheric behavior of sulfur oxide and nitrogen oxide emitted from a specific large power plant in complex terrain; (2) Appraisal of current knowledge of plume behavior under similar conditions; (3) Improvement of capabilities for predicting such behavior.</p> <p><b>2. Approach:</b> (1) A six-month literature survey will be conducted of current knowledge of atmospheric behavior of plumes from tall stacks in complex terrain, including conservative dispersion and sulfate transformation; plus an appraisal of the adequacy of available modeling techniques for predicting such behavior. (2) Field measurements will be conducted for a year, using fixed and mobile ground plus airborne monitoring at the 700 MW coal-fired Clinch River Power Plant in the Appalachian Mountains at Carbo, Virginia. Parameters observed continuously will include meteorology; NO<sub>x</sub> and SO<sub>x</sub> emissions; concentrations over time and space of NO<sub>x</sub>, SO<sub>2</sub>, sulfates and O<sub>3</sub> in the plume. (3) Improved modeling techniques for describing plume behavior in complex terrain and sulfate transformation will be developed upon data and the Clinch River literature survey.</p> <p><b>3. Progress and Plans:</b> Work began October 31, 1975. Field measurements begin June 1976 with completion May 1977. Analyses and modeling will be completed October 1977 with Final Report in early 1978.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  H.A.		SIGNATURE OF PRINCIPAL INVESTIGATOR JOHN L. SWIFT <i>[Signature]</i> Project Manager	
		DATE December 3, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		C-7	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER J.K. Burchard	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION EPA	
FUNDS OBLIGATED \$300 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 3/75
			ESTIMATED COMPLETION DATE 8/76



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77ABA</b>	
TITLE OF PROJECT <b>FGC Waste Characterization Disposal Method Evaluation, and Transfer of Technical Information</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Julian W. Jones, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>This is a modification to existing Contract 68-02-1010, which expands the current sampling and analysis effort to include flue gas cleaning waste products from 5 additional plants; this will expand the current effort from 8 plants to 13, making the program results more widely applicable. The modification also includes expansion of current physical testing efforts; a new sub-task for engineering analyses of gypsum-producing (oxidation) processes, which have recently emerged as an alternative to chemical fixation; and expansion of support for a more extensive EPA field study of FGC waste disposal at TVA's Shawnee Steam Plant. In addition, the modification includes a major new task for the review, correlation and assessment of all EPA and private industry efforts in the area of flue gas cleaning waste disposal, including participation in all EPA program coordination meetings and preparation of an annual integrated report on flue gas cleaning waste disposal technology.</p> <p>Results of this new task will be reported through another new task entitled "Technology Transfer". This task will include formal briefings or presentations and assembling information for EPA's Office of Technology Transfer.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Jerome Rossoff</b>	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>1</b>	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>Julian W. Jones</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, EETB/ EPA</b>	
FUNDS OBLIGATED <b>\$500 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>Oct. 75 (ext.)</b>
		ESTIMATED COMPLETION DATE <b>Oct. 76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77ABA	
TITLE OF PROJECT <b>An Evaluation of Alternatives for the Disposal of Flue Gas Desulfurization Sludges</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Richard R. Lunt, Project Director, Senior Consultant</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Arthur D. Little, Inc.</b> <b>Acorn Park</b> <b>Cambridge, Massachusetts 02140</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>This two-phase study involves the investigation of the feasibility of the disposal of FGD sludges in mines and in the ocean.</b>  <u><b>Technical Objectives and Scope</b></u>  <u><b>Phase I - Evaluation of Alternative Disposal Options</b></u> <ul style="list-style-type: none"> <li>● Assess the potential environmental impact of the disposal of FGD sludges in mines and the ocean;</li> <li>● Determine the regulatory restrictions regarding such disposal of FGD sludges and assess the adequacy of state and federal regulations with regard to protecting the environment;</li> <li>● Determine reasonable disposal system criteria for protecting the environment and develop realistic approaches, if possible, for implementing ocean and/or mine disposal systems; and</li> <li>● Assess the costs for conceptualized disposal systems, including the impact of the economics on the costs of FGD systems.</li> </ul> <p>The emphasis in Phase I will be placed upon determining the feasibility of these sludge disposal options. Efforts will be primarily directed toward assessing the environmental fate and the applicability of available and developing technology in implementing disposal operations.</p> <u><b>Phase II - Verification and Demonstration of One Mine and One Ocean Disposal Alternative</b></u> <p>The objective of Phase II is to demonstrate (or simulate) on a pilot scale, if viable, one mine and one ocean disposal alternative. In Phase II, ADL will be assisted by New England Aquarium in the simulation of the ocean alternative.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>s/Richard R. Lunt</b>	
		DATE  <b>9/16/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		4	
		PROJECT OFFICER <b>Julian W. Jones</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, EETB/ EPA</b>	
FUNDS OBLIGATED <b>\$250,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>July 75</b>
		ESTIMATED COMPLETION DATE <b>Feb. 78</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY  <b>NOTICE OF RESEARCH PROJECT</b>		<i>Form Approved</i> OMB No. 158-R0081	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		PROJECT NO. (Do not use this space) SSIE EPA <div style="text-align: center; font-size: 1.2em;">77ABA</div>	
TITLE OF PROJECT <b>Compilation of Data Base for Development of Standards/Regulation for Disposal of Flue Gas Cleaning Wastes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Curtis J. Schmidt, Project Officer			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
INTERIM			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies sup- porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The purpose of this project is to obtain existing data and evaluate its adequacy to support the development of standards/regulations for land disposal of flue gas desulfurization (FGC) sludges and to suggest new research, development, planning, and activities related to the development of standards and regulations. The work shall consist of two phases. Phase I shall consist of the establishment of criteria needed by the FGC system user to evaluate his waste disposal options, including the compilation and selection of existing or proposed regulations (e.g., for surface or ground water) which have been or could be applied to FGC waste disposal, and the evaluation of the economic and institutional impact of existing or proposed regulations. Phase II shall consist of the selection or proposal of one or more regulations which will be applied to the development of a preliminary set of guidelines for the disposal of FGC sludges. In addition, research and development needs to finalize the guidelines that will be identified. Although a limited amount of work may be conducted simultaneously on both phases, Phase I should be essentially completed before initiating Phase II.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center; font-size: 1.1em;">Curtis J. Schmidt</div>	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 1.2em;">6</div>	
		PROJECT OFFICER <div style="text-align: center; font-size: 1.1em;">Donald E. Sanning</div>	
		RESPONSIBLE ORGANIZATION <div style="text-align: center; font-size: 1.1em;">MERC (Cincinnati) EPA</div>	
FUNDS OBLIGATED  <div style="text-align: center; font-size: 1.1em;">\$150 K</div>	F.Y.  <div style="text-align: center; font-size: 1.1em;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <div style="text-align: center; font-size: 1.1em;">Unknown</div>	STARTING DATE
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77ABA</b>	
TITLE OF PROJECT <b>Water Recycle/Reuse Alternatives in Coal-Fired Steam-Electric Power Plants</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>P. E. Hudson, Principal Scientist</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION		<b>Radian Corporation P. O. Box 9948 8500 Shoal Creek Blvd. Austin, TX 78766</b>	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>In this effort, Radian Corporation will conduct a study on minimizing water use and wastewater discharges from coal-fired steam-electric power plants. This study will consist of six tasks: (1) Plant selection and characterization--selection of 3 or 4 specific plants for detailed analysis; collection of detailed data on make-up process, and effluent waters, plant design, operating modes, coal composition and climate for each plant. (2) Process model preparation--preparation of computer models to simulate make-up, process and effluent water streams and chemical equilibria of processes for each of the specific plants selected for detailed study. (3) Simulation of existing plant operations--verification of process computer models by comparing existing plant chemical and operating data with data predicted by the models. (4) Technical assessment of recycle/reuse options--formulation of a number of water recycle/reuse options to minimize plant water requirements and discharges for the specific plants selected for study; evaluation of at least one option (via process simulation) for each plant. (5) Cost estimates--preparation of capital and operating cost estimates for each viable water recycle/reuse option. (6) Recycle/Reuse assessment report--detailed presentation of program results, including recommendations of the recycle/reuse options to be used at each of the plants studied.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <b>P. E. Hudson</b>	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>7</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Fred Roberts</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, EETB / EPA</b>	
FUNDS OBLIGATED <b>\$197,300</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>July 75</b>
		ESTIMATED COMPLETION DATE <b>July 76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77ABA</b>	
TITLE OF PROJECT <b>Lime/Limestone Scrubbing Sludge Conversion Pilot Study</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>A.G. Sliger, Section Head, Environmental Engineering</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>The M. W. Kellogg Company Three Greenway Plaza East Houston, TX 77046</b>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The project is designed to conduct further research and development on significant process steps of Kellogg's proprietary "Kel-S" process, for which Kellogg holds two patents and plans to apply for a third. The overall Kel-S process includes limestone scrubbing and sludge oxidation steps which have already been extensively tested on a pilot scale. This program involves further processing of the sludge, specifically (1) reduction of the <math>\text{CaSO}_3</math>-<math>\text{CaSO}_4</math> mixture to <math>\text{CaS}</math> using coal as the reductant, (2) dissolution of the <math>\text{CaS}</math> to <math>\text{Ca(HS)}_2</math>, and (3) recovery (precipitation) of the <math>\text{Ca}</math> as <math>\text{CaCO}_3</math> (with simultaneous release of <math>\text{H}_2\text{S}</math> for potential production of elemental S). The sludge reduction step has been tested in a small batch kiln; in this program, it will be tested in a larger, continuous kiln. The dissolution and precipitation steps have been tested on a bench scale using commercially produced <math>\text{CaS}</math>; in this program further bench scale tests with reduced sludge, followed by pilot scale continuous tests of these steps will be conducted.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>A.G. Sliger</b>	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		8	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Julian W. Jones</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IEKL-RTP, VIPD, EETB / EPA</b>	
FUNDS OBLIGATED <b>\$750 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>UNKNOWN</b>	STARTING DATE <b>10/75</b>
		ESTIMATED COMPLETION DATE <b>3/77</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77ABA</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Instrumental Measurement of Liquid Droplet Size Distribution for Demister Evaluation</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>KLD Associates, Inc. Suite 204, 7 High St. Huntington, N. Y. 11743</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>Demister efficiency has become a major concern as SO<sub>2</sub> scrubbers have reached operational status due to possible penetration of sulfate material which then enters the atmosphere. Measurement techniques have not been available to directly measure demister performance. IERL-RTP developed a prototype instrument which is able to size liquid aerosols and testing of this device indicates several areas in which improvements are needed for successful application of the device to sulfate scrubbers. It is expected that completion of this effort should provide a total system capable of determining demister performance continuously. Reliability, performance, and range of the device will be increased to encompass the environment found in SO<sub>2</sub> slurry scrubbers/demisters. Automatic and remote monitoring systems will be devised for process control applications.</p> <p>This contract will extend the use of the droplet sizing device to sulfate scrubber demister evaluation, an area of urgent concern to EPA. Proper measurement techniques will allow the selection of demister technology which could minimize or eliminate direct sulfate emissions from SO<sub>2</sub> scrubbers as well as provide process control of the scrubbers and demisters.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Hector Medeck</b>	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<input type="checkbox"/> PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>Bruce Harris</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
		<b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$99,300</b>	<b>75</b>	<b>11</b>	<b>6/25/75</b>
		ESTIMATED COMPLETION DATE	
		<b>7/25/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 155-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77ABA-012</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Line/Limestone Scrubbing Sludge Conversion Pilot Study</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>A.G. Sliger, Section Head, Environmental Engineering</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>The M. W. Kellogg Company Three Greenway Plaza East Houston, TX 77046</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The project is designed to conduct further research and development on significant process steps of Kellogg's proprietary "Kel-S" process, for which Kellogg holds two patents and plans to apply for a third. The overall Kel-S process includes limestone scrubbing and sludge oxidation steps which have already been extensively tested on a pilot scale. This program involves further processing of the sludge, specifically (1) reduction of the $\text{CaSO}_3$ - $\text{CaSO}_4$ mixture to $\text{CaS}$ using coal as the reductant, (2) dissolution of the $\text{CaS}$ to $\text{Ca(HS)}_2$ , and (3) recovery (precipitation) of the $\text{Ca}$ as $\text{CaCO}_3$ (with simultaneous release of $\text{H}_2\text{S}$ for potential production of elemental S). The sludge reduction step has been tested in a small batch kiln; in this program, it will be tested in a larger, continuous kiln. The dissolution and precipitation steps have been tested on a bench scale using commercially produced $\text{CaS}$ ; in this program further bench scale tests with reduced sludge, followed by pilot scale continuous tests of these steps will be conducted.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>A.G. Sliger</b>	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO. <b>77ABA-012</b>	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>Julian W. Jones</b>	
<input type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION <b>IEKL-RTP, VIPD, EETB /EPA</b>	
<input type="checkbox"/> RESEARCH GRANT			
FUNDS OBLIGATED <b>N/A</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>UNKNOWN</b>	STARTING DATE
			ESTIMATED COMPLETION DATE

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77ABB	
TITLE OF PROJECT Assessment, Control, and Health Effects of Indoor Air Pollution			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Walter Steen, Co-Project Officer, IERL, EACD, APS Doug Worf, Project Director, EMSL, OD			
NAME AND ADDRESS OF APPLICANT INSTITUTION Interim			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<u>Objectives:</u>			
A. To identify the indoor and outdoor pollution sources which affect indoor air quality.			
B. To determine the relative magnitude and concentration of the pollutants from these sources in the indoor environment.			
C. To assess the potential or actual health and welfare effects of these pollutants upon occupants of indoor structures.			
D. To determine the impact and assess the importance of energy conservation measures (as applied to existing and new structures) upon the generation, build-up, and elimination of indoor air pollutants.			
E. To identify various control techniques which could be utilized to reduce the concentration and effects of indoor air contaminants for the protection of public health and welfare.			
F. To suggest basic alternative techniques which could be taken in energy conservation measures which would reduce or eliminate unacceptable levels of indoor air contaminants.			
<u>Approach:</u>			
The work to be performed under the contact is divided into three phases.			
A. The first phase will include a review and assessment of published literature and ongoing research efforts.			
B. The second phase will include a program of indoor and outdoor air monitoring and determination of estimates of indoor air quality through mathematical models.			
C. A third phase definition of effects of specified indoor air pollutants on the health			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER Walter Steen	
<input type="checkbox"/> AGENCY STAFF (Intramural)	1	RESPONSIBLE ORGANIZATION	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		EPA/RTP	
<input type="checkbox"/> RESEARCH GRANT			
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$300 K	75		10/75
			ESTIMATED COMPLETION DATE
			11/76



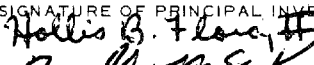
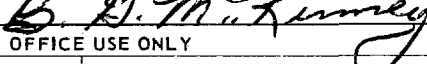
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77ABB	
TITLE OF PROJECT <b>Assessment, Control, and Health Effects of Indoor Air Pollution</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Walter Steen, Co-Project Officer, IERL, EACD, APS</b> <b>Doug Worf, Project Director, EMSL, OD</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Interim</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>of exposed populations will be considered for funding at the completion of Phase II.</b>  <u><b>Current Plans:</b></u> <b>To select a qualified contractor.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>Sept. 17, 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)  <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>1</b>	
		PROJECT OFFICER <b>Walter Steen</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, APB</b>	
FUNDS OBLIGATED <b>300 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>10/75</b>
		ESTIMATED COMPLETION DATE <b>11/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77ABD	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Catalytic Reduction of NO<sub>x</sub>, Pilot Plant Operations - Continuation</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Y.C. Lee, President</b> <b>Jules Kline, Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Environics, Inc.</b> <b>7424 Lorge Circle</b> <b>Huntington Beach, CA 92647</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Environics, Inc., has been conducting pilot plant testing of catalytic NO<sub>x</sub> reduction under EPA Contract #68-02-0292 dated January 4, 1973.</b>  <b>The original purpose of the contract was to design and construct a pilot plant and to operate it for a period of nine to twelve months under gas firing only, in order to demonstrate the commercial feasibility of the process. The pilot plant was in continuous operation from June 1973 until July 1974 except for plant shutdowns and periods of oil firing. Total operating time exceeding 2000 hours with NO<sub>x</sub> Removal Efficiency in the 85-95% range.</b>  <b>Because of the projected shortage of natural gas, the success obtained during gas fired tests, and the perceived need for commercial NO<sub>x</sub> Removal process to be compatible with oil firing, the program was redirected to allow testing on either gas fired or oil fired combustion flue gas. This continuation will allow a more extensive determination of the effect of temperature, space velocity, and other variables. Analyses will also be performed on the effluent flue gas and solids to evaluate the secondary effects of the control process. The results of this supporting laboratory activity are expected to provide the necessary information for the formulation of recommendations for possible future larger scale work.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
		DATE  <b>Sept. 17, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 1.5em;">A-1</div>	
		PROJECT OFFICER <b>Roger Christman</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, UIPD, PTB</b>	
FUNDS OBLIGATED  <div style="text-align: center; font-size: 1.2em;">52,900</div>	F.Y.  <div style="text-align: center; font-size: 1.2em;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <div style="text-align: center; font-size: 1.2em;">0</div>	STARTING DATE  <div style="text-align: center; font-size: 1.2em;">4/75</div>
		ESTIMATED COMPLETION DATE  <div style="text-align: center; font-size: 1.2em;">11/75</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <div style="text-align: center; font-weight: bold;">77ABD</div>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>NO<sub>x</sub> Control Technology Status Reports</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>L.W. Anderson, Project Manager</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Aerotherm Division, Acurex Corporation 485 Clyde Avenue, Mountain View, CA 94042</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>Numerous technical papers and reports have been published in recent years on the subject of control of nitrogen oxides from stationary sources. The present state-of-the-art is well established and has been adequately reported in the literature. Federal New Source Performance Standards for NO<sub>x</sub> have been promulgated for a variety of equipment classes and are planned for other sources in the near future. Additionally, State and local standards for NO<sub>x</sub> are in effect for specific existing and new combustion sources.</p> <p>It is important that the technical community engaged in research and development of NO<sub>x</sub> control methods, as well as those involved in standards preparation and/or enforcement, be kept informed of the status of NO<sub>x</sub> control technology developments and implementation. By providing periodic concise announcements of planned or implemented NO<sub>x</sub> control technology, the dialogue within the "NO<sub>x</sub>-community" can be improved and technology transfer can be expedited.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>David G. Lachapelle</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>IERL, EACD, CRB / EPA</b>	
TASK NO. <div style="text-align: center; font-weight: bold;">4</div>			
FUNDS OBLIGATED <b>\$52 K Base</b> <b>\$150 K Energy</b>	F.Y. <div style="text-align: center; font-weight: bold;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <div style="text-align: center; font-weight: bold;">1</div>	STARTING DATE <div style="text-align: center; font-weight: bold;">5/75</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center; font-weight: bold;">2/76</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-1AG-D5-E721-AZ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Lime/Limestone and Advanced Concepts--TVA's 1-MW Pilot Plant (Colbert)</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. Gerald A. Hollinden, Chemical Engineer, TVA Power Research Staff, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771 Russell F. Robards, Chemical Engineer, TVA Power Research Staff, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Tennessee Valley Authority Knoxville, Tennessee			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The objectives of this study are to determine the effects of gas velocity and solid/-liquid loadings on mist eliminator performance and to determine the mechanical and chemical methods necessary to maintain continuous reliable operation. The study is to be carried out at TVA's 1-MW lime/limestone pilot plant facility located at the Colbert Power Plant. The initial mist eliminator designs are formed from a compilation of data received from previous pilot plant tests at TVA and observations of other research projects throughout the world.  Current plans are to continue testing until a reliable mist eliminator design and washing scheme are achieved.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>Russell F. Robards</i>	
		DATE  August 12, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  1  PROJECT OFFICER Gerald A. Hollinden, Russell F. Robards RESPONSIBLE ORGANIZATION Power Research Staff, TVA	
FUNDS OBLIGATED  \$600	F.Y.  1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  1	STARTING DATE  May 7, 1975
		ESTIMATED COMPLETION DATE  August 1, 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-IAG-D5-E721-BA	
TITLE OF PROJECT Processing Sludges from Lime/Limestone Wet Scrubbing Processes for Disposal or Recycle and Studying Disposal of Fluidized Bed Combustion Waste Products			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  James L. Crowe, TVA, 524 Power Building, Chattanooga, Tennessee 37401 telephone: 615/755-2771			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Tennessee Valley Authority Chattanooga, Tennessee 37401			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The objectives of this program are to define the variables in pilot plant production of fertilizer from scrubber product sludge, to study the compatibility factors involved in storage and mixing of this fertilizer material with conventional fertilizer, to analyze for trace elements and potential toxic species in this type of fertilizer, to make a marketing and production cost study of this material, to define how scrubber operation affects the characteristics of lime/limestone product sludges, and to define the characteristics of and disposal methods for fluidized bed combustion waste products.  The project has been underway for approximately two months. Current plans consist of a pilot plant run to produce one to three tons of a 6-20-0 fertilizer from spent scrubber sludge. Chemical, physical, and agronomic tests will be made on this material.  The chemical and physical characteristics of sludges produced at the TVA-EPA Shawnee scrubbing installation will be defined and correlated to the scrubber operating conditions.  Initial plans for studying fluidized bed combustion waste products consist of collecting and evaluating existing data on the chemical and physical characteristics of these waste followed by actual analysis of wastes material to obtain total characterization. An evaluation will also be made of methods designed for the disposal, treatment or regeneration of this material			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>James L. Crowe</i>	
		DATE  <i>August 13, 1975</i>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		1	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER James L. Crowe	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION Power Research Staff, TVA	
FUNDS OBLIGATED \$200 K	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1.25 years	STARTING DATE May 7, 1975
		ESTIMATED COMPLETION DATE September 1977	

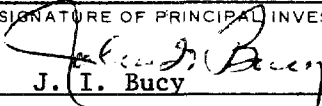
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E721-BB	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Characterization of Effluents from Coal Fired Utility Boilers</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Dr. B. G. McKinney, Supervisor, Environmental Research Section, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771 Dr. Hollis B. Flora, II, Chemical Engineer, Power Research Staff, 524 Power Building, Chattanooga, Tennessee 37401, telephone: 615/755-2771			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Tennessee Valley Authority Knoxville, Tennessee 37902			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The project will cover (1) characterization and quantification of chemical and physical components of coal pile drainage, (2) assessment and quantification of the chemical and physical nature of ash pond effluent after the pH of the ash pond has been adjusted to meet existing standards, (3) evaluation of an ash pond monitoring program to determine the sampling necessary to obtain reliable, representative information, (4) assessment and characterization of coal ash leachate on ground water, (5) evaluation and quantification of the chlorinated effluent in the discharge canal of a once-through cooling system, and (6) the characterization of gaseous and particulate emissions from two plants with different units, e.g., cyclone and tangential fired units.  The project will focus on determining the quantities of some trace elements in various locations in and around the power plant. The samples will be analyzed for such trace elements as mercury, cadmium, chromium, selenium, arsenic and about eight to ten other trace elements.  Current plans include starting an integrated sampling program on coal pile drainage, ash pond discharge, and chlorinated effluent by October 1975.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;">    </div>	
		DATE 8/12/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 1-7  PROJECT OFFICER B. G. McKinney, Hollis B. Flora, II RESPONSIBLE ORGANIZATION Power Research Staff, TVA	
FUNDS OBLIGATED \$850 K	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 3	STARTING DATE May 1975  ESTIMATED COMPLETION DATE June 1978

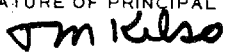
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E721-BC	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Fly Ash Characterization and Disposal</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Shirley S. Ray, Research Analyst Power Research Staff 524 Power Building Chattanooga, Tennessee</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Tennessee Valley Authority Knoxville, Tennessee</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The purposes of this project are to chemically and physically characterize ashes and their waste effluents and to examine fly ash handling systems, disposal and utilization methods, and treatment methods for water reuse. Mass balances around several facilities having different boiler systems and coals may be incorporated to determine the differences in ash and effluent characteristics with variation in boiler design, operation, and coal type. The scope of this project includes summarizing available information on ashes and effluents, wet and dry handling systems, disposal and utilization of fly ash, and methods of treatment for water reuse; characterizing ashes and effluents of several plants; and feasibility studies on disposal alternatives and specific ash problems.  Currently, data is being collected for the summary of available information on ashes and effluents. A detailed project workplan is being prepared for the characterization study of ashes and effluents on different plants, including the sampling program, physical characterization, and chemical analyses.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>Shirley S. Ray</i>	
		DATE  8/12/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>Shirley S. Ray</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>Power Research Staff, TVA</b>	
FUNDS OBLIGATED  \$300 K	F.Y.  1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  2 years	STARTING DATE  June 1975
		ESTIMATED COMPLETION DATE  May 6, 1980	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA-IAG-D5-E721-BH	
TITLE OF PROJECT <b>Energy Requirement Optimization Study of Selected Processes for Removing SO<sub>2</sub> from Power Plant Stack Gases</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Project Director: A. F. Little, Project Engineer, Design Branch, Tennessee Valley Authority, Office of Agricultural and Chemical Development, Muscle Shoals, Alabama 35660 (Telephone 205-383-4631, ext. 355).			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Tennessee Valley Authority Office of Agricultural and Chemical Development Muscle Shoals, Alabama 35660			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies sup- porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The primary objectives of the study project are to summarize the energy requirements of selected power plant stack gas SO <sub>2</sub> removal processes and then prepare economic and feasibility analyses of process modifications for reducing and optimizing the energy requirements for the processes. Conceptual design and cost studies will be surveyed for energy requirement data. Also a survey will be made of the energy requirement data for any existing demonstration and commercial units. The data obtained from these surveys will be summarized and analyzed to establish a current base energy requirement level for each of the processes. Feasibility and economic evaluations will then be made of process modifications and variations for reducing and optimizing the energy requirements. Process modifications and variations to be studied will include such items as scrubber type, reheat level and type, heat recovery systems, etc.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  None		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>A. F. Little</i> A. F. Little	
		DATE  8/11/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  I  PROJECT OFFICER A. F. Little RESPONSIBLE ORGANIZATION Tennessee Valley Authority Office of Agricultural & Chemical Development	
FUNDS OBLIGATED  \$50K	F.Y.  1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  2	STARTING DATE  May 7, 1975
		ESTIMATED COMPLETION DATE  April 1977	







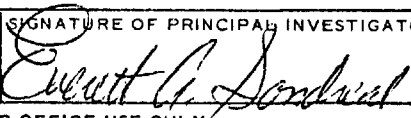
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA • EPA-IAG-D5-E721-BJ	
TITLE OF PROJECT <b>Byproduct Marketing</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Project Director: Dr. J. I. Bucy, Agr. Economist, Test &amp; Demonstration Br.* (ext. 282).</b> <b>Support personnel: Dr. J. L. Nevins, Head, Systems &amp; Planning Dev. Staff, Test &amp; Demonstration Branch* (ext. 784).</b> <b>H. G. Walkup, Supvr., Dist. Economics Section, Test &amp; Demonstration Branch* (ext. 783).</b> <b>P. A. Corrigan, Senior Project Leader, Process Engineering Branch* (ext. 380).</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>*Tennessee Valley Authority (Telephone 205-383-4631)</b> <b>Office of Agricultural and Chemical Development</b> <b>Muscle Shoals, Alabama 35660</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). <small>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small>  The purpose of this study is to (1) identify the quantities of abatement byproducts which could be produced by air pollution abatement installations at various point sources of sulfur emissions in the United States, (2) define the most economical market, distribution, and transportation systems including storage costs for abatement products, (3) determine competitive costs of existing processes which utilize elemental sulfur, (4) predict as a function of the above the possible net sales revenue for marketing strategies covering the existing sulfur market and growth markets for the abatement products, and (5) recommend the most practical byproduct for specific point sources based on the above information.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>None</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR   <b>J. I. Bucy</b>	
		DATE  <b>8/11/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>1-3</b>	
		PROJECT OFFICER <b>J. I. Bucy</b>	
		RESPONSIBLE ORGANIZATION <b>Tennessee Valley Authority</b> <b>Office of Agricultural &amp; Chemical Development</b>	
FUNDS OBLIGATED. <b>\$350 K</b>	F.Y. <b>1975</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>2</b>	STARTING DATE <b>May 7, 1975</b>
		ESTIMATED COMPLETION DATE <b>July 1977</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA-IAG-D5-E721-BK	
TITLE OF PROJECT <b>Development of Flue Gas Desulfurization Technology--Pilot-Plant Study of the Ammonia Absorption - Ammonium Bisulfate Regeneration Process</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Project Director: T. M. Kelso, Group Supervisor, Process Engineering Branch* (ext. 539). Support personnel: P. C. Williamson, Senior Project Leader, Process Engineering Branch* (ext. 741).			
NAME AND ADDRESS OF APPLICANT INSTITUTION *Tennessee Valley Authority    (Telephone 205-383-4631) Office of Agricultural and Chemical Development Muscle Shoals, Alabama 35660			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Ammonia scrubbing with ammonium bisulfate regeneration has the advantage of low energy requirement compared with other recovery methods. Moreover, ammonium sulfate which is formed by unavoidable oxidation is a useful product (fertilizer). A 1-MW pilot plant is being operated to study the combination of ammonia scrubbing for SO <sub>2</sub> removal and ammonium bisulfate regeneration to produce ammonia for recycle and a concentrated stream of SO <sub>2</sub> for further processing. Separation of byproduct ammonium sulfate will be studied.  The absorption section was operated with the plume emission within acceptable limits. Release and recovery of the absorbed SO <sub>2</sub> has been accomplished satisfactorily in the regeneration section. An evaporator-crystallizer was installed to concentrate and crystallize the ammonium sulfate for separation. A decomposer will be installed in FY 1975 to decompose the ammonium sulfate to ammonia for recycle to the absorption section and acid ammonium bisulfate for recycle to the regeneration section. The addition of the decomposer will complete the equipment requirements for the entire closed-loop regeneration process.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <div style="text-align: center;">None</div>		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;">   T. M. Kelso </div>	
DATE  <div style="text-align: center;">8/11/75</div>			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center;">I</div>	
PROJECT OFFICER <div style="text-align: center;">T. M. Kelso</div>		RESPONSIBLE ORGANIZATION <div style="text-align: center;">Tennessee Valley Authority Office of Agricultural &amp; Chemical Development</div>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$2000K	1975	2	May 7, 1975
			ESTIMATED COMPLETION DATE
			December 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA-IAG-D5-E721-BL	
TITLE OF PROJECT <u>Development of Flue Gas Desulfurization Technology--</u> <u>Shawnee Lime/Limestone Scrubbing Program</u>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Project Director: H. W. Elder, Director, Stack Gas Emission Studies Staff* (ext. 516). Support personnel: A. F. Little, Project Engineer, Design Branch* (ext. 355). S. B. Jackson, Chemical Engineer, Design Branch* (ext. 348). J. K. Metcalfe, Test Facility Supervisor, Shawnee Steam Plant, Tennessee Valley Authority, Paducah, Kentucky 42001 (Telephone 502-443-6480).			
NAME AND ADDRESS OF APPLICANT INSTITUTION *Tennessee Valley Authority (Telephone 205-383-4631) Office of Agricultural and Chemical Development Muscle Shoals, Alabama 35660			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Conceptual design and economic studies and pilot-plant tests indicate that limestone wet scrubbing offers good promise as an effective method of SO <sub>2</sub> emission control for stack gases at large coal-fired power plants. Using two 10-MW-size scrubber trains, a prototype-scale evaluation of the process is being conducted at Shawnee Steam Plant (unit 10). The project is a joint effort of TVA, EPA, and Bechtel Corporation. The project will evaluate the feasibility, effectiveness, and economics of limestone wet scrubbing for removal of SO <sub>2</sub> and particulates from stack gas. Tests with lime are also included. As part of this program, additional task efforts will include (1) sludge treatment/disposal studies, (2) advanced limestone testing, (3) advanced lime/dolomitic lime testing, (4) design/cost computer study, and (5) a gypsum-sludge utilization study. An updated conceptual design and cost study report is also planned.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  None		SIGNATURE OF PRINCIPAL INVESTIGATOR  H. W. Elder <i>H. W. Elder</i>	
		DATE  8/11/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  1  PROJECT OFFICER H. W. Elder RESPONSIBLE ORGANIZATION Tennessee Valley Authority Office of Agricultural & Chemical Development	
FUNDS OBLIGATED \$1501K Base 0 Energy		F.Y. 1975 NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 2 STARTING DATE May 7, 1975 ESTIMATED COMPLETION DATE July 1977	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-IAG-D5-E721-BM	
TITLE OF PROJECT <b>Advanced Concepts SO<sub>2</sub> Removal Process Improvements - Bench-Scale Studies</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Project Director: J. M. Potts, Chemical Research Supervisor, Applied Research Branch* (ext. 540). Support personnel: J. E. Jordan, Chemical Engineer, Applied Research Branch* (ext. 550).			
NAME AND ADDRESS OF APPLICANT INSTITUTION *Tennessee Valley Authority (Telephone 205-383-4631) Office of Agricultural and Chemical Development Muscle Shoals, Alabama 35660			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The primary purpose of Task I is to develop and improve all aspects of a potassium scrubbing system for removing SO <sub>2</sub> from stack gases, absorption of SO <sub>2</sub> , decomposition of resultant potassium pyrosulfite by pyrolysis, and reduction of pyrolysis product to enable production of elemental sulfur. A major part of the laboratory work on the absorption step has been completed and work on the other steps is under way or being planned. The purpose of Task II is to develop better methods and equipment for promoting oxidation in SO <sub>2</sub> recovery systems where this would be desirable. Another purpose is to develop methods for coping with inadvertent oxidation in systems where oxidation is undesirable.  A gas-liquor contact device is being designed with the idea of providing improved utilization of oxygen from air. Tests will be made to compare results with other devices to determine most favorable energy to oxidation ratios.  Exploratory tests have been made to study the selective precipitation of barium sulfate from potassium sulfate-sulfite and ammonium sulfate-sulfite solutions by addition of barium chloride or barium carbonate. Chemical analyses are being obtained.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  None		SIGNATURE OF PRINCIPAL INVESTIGATOR  J. M. Potts	
		DATE  8/11/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		J. M. Potts	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
		Tennessee Valley Authority Office of Agricultural & Chemical Development	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$281K	1975	2	May 7, 1975
			ESTIMATED COMPLETION DATE
			June 1977

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77 BBV (EPA-IAG-D5-E681-BV)	
TITLE OF PROJECT <b>Pilot Plant Scrubber Test Program for the Milton R. Young Generating Station</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Everett Sondreal, Principal Investigator, Research Supervisor, Combustion &amp; Liquefaction</b> <b>Phil Tufte, Research Chemical Engineer, Combustion &amp; Liquefaction</b> <b>Harvey Ness, Research Chemist, Combustion &amp; Liquefaction</b> <b>Willis Beckering, Research Chemist, Combustion &amp; Liquefaction</b> <b>Roy Severson, Chemical Engineer, Combustion &amp; Liquefaction</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Grand Forks Energy Research Center</b> <b>Box 8213, University Station</b> <b>Grand Forks, ND 58202</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The Grand Forks Energy Research Center has entered into a contract with two utilities and a scrubber vendor for the purpose of further investigating and demonstrating the feasibility of utilizing alkali solubilized from a lignite fly ash produced in a cyclone-fired boiler in lieu of lime alkali as the chemical agent for wet scrubbing in a 5,000 cfm pilot plant scrubber. Specific objectives of the contract are: 1) to determine sulfur dioxide reduction using only fly ash and also, varying amounts of lime alkali in conjunction with fly ash, 2) to determine the severity of corrosion and scale formation, 3) to determine the chemistry of closed loop operation, 4) to determine waste disposal problems associated with fly ash-derived soluble salts and selected trace elements leached from sludge, 5) to determine a mass balance, including selected trace elements, of all input and output materials, and 6) to evaluate the capital and operating costs of fly ash alkali wet scrubbing for 100 MW, 500 MW, and 1000 MW powerplants.  In-house research is being conducted at the Grand Forks Energy Research Center investigating two major changes in ash alkali scrubbing methods to achieve higher levels of alkali utilization from the cyclone-fired fly ash. The first modification will involve scrubbing flue gas with a low pH (below pH 3) solution and then neutralizing a sidestream of the solution with fly ash. The second modification will involve scrubbing flue gas with a mixed-salt double-alkali type solution derived from fly ash so as to optimize utilization of specific fly ashes that are high in sodium and magnesium as well as calcium.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR 	
		DATE 10-23-75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER Everett A. Sondreal	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION ERDA/Grand Forks Energy Research Ctr., N.D.	
FUNDS OBLIGATED 246 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 7/75
			ESTIMATED COMPLETION DATE 9/78

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA IAG-D5-E681-BV	
TITLE OF PROJECT Develop Flue Gas Desulfurization Technology - Alkaline Ash Scrubbing			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Everett Sondreal, Research Supervisor Gordon H. Gronhovd, Director Harvey M. Ness, Research Chemist			
NAME AND ADDRESS OF APPLICANT INSTITUTION Grand Forks Energy Research Center U.S. ERDA, Box 8213, University Station Grand Forks, ND 58202			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="text-align: center;"> <p>The major objectives are as part of an ongoing program on removal of SO<sub>2</sub> from flue gas using alkaline fly ash from low-rank Western coals to:</p> <ol style="list-style-type: none"> <li>1. Design and construct a 5,000 acfm pilot plant at a power cooperative generating station.</li> <li>2. Operate the 5,000 acfm pilot plant to obtain test data on a sufficient scale to indicate commercial feasibility.</li> <li>3. Support larger scale test work with existing laboratory and 120 ascfm pilot plant tests.</li> </ol> <p>At present, the 5,000 ascf unit is being constructed at the test site. Tests with the small scrubber has established operational parameters for use in larger unit. Base laboratory facilities at the Grand Forks Energy Research Center are operational. A portable laboratory housed in a trailer will be used for control work at the test site.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE 9/15/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <div style="text-align: center; font-size: 1.5em;">2</div>	
		PROJECT OFFICER Everett Sondreal, Research Supervisor RESPONSIBLE ORGANIZATION Grand Forks Energy Research Center / ERDA	
FUNDS OBLIGATED \$100 K	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1977	STARTING DATE FY 1976  ESTIMATED COMPLETION DATE FY 1977

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>EPA-IAG-D5-E685-DA</b>	
TITLE OF PROJECT <b>Powerplant Stack Gas SO<sub>2</sub> Scrubbing-Citrate Process</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Joe B. Rosenbaum, Research Director</b> <b>W.A. McKinney, Research Supervisor</b> <b>W.I. Nissen, Project Leader</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Salt Lake City Metallurgy Research Center</b> (Supervised by Director, Metallurgy <b>Bureau of Mines, Salt Lake City, Utah</b> Research, Bureau of Mines, <span style="float: right;"><b>Washington, D.C. 20240 )</b></span>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="text-align: center;">To initiate contractual procedures for the design and construction of large-scale citrate process demonstration plant for the removal of SO<sub>2</sub> from the flue gas of a powerplant burning high sulfur coal. This effort will be coordinating the Environmental Protection Agency and industrial firms participating in the demonstration project.</p> <p style="text-align: center;">Started Fiscal Year 1975; expected completion date Fiscal Year 1979.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>J.H. Bilbrey, Jr.</b>	
DATE			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>1-2</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>William McKinney</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>DOI, BOM</b>	
FUNDS OBLIGATED <b>Base 1100 K</b> <b>Energy 1000K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>6/75</b>
		ESTIMATED COMPLETION DATE <b>9/79</b>	



# **DIRECT COMBUSTION**

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAM	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Assessment/Systems Analysis and Program Support for Fluidized-Bed Combustion</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  INTERIM - Final expected Mar. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>As a coordinated part of the national program to develop coal-burning fluidized-bed boilers, EPA is developing necessary environmental data on the fluidized-bed combustion process, including paper studies and experimental investigations on a variety of equipment. One part of the EPA fluidized combustion program is to be overall environmental assessment and systems analysis of the fluidized-bed combustion process, conducted on a level-of-effort basis; the continually refined and updated output of this analysis will be employed to guide the remainder of the EPA program.</p> <p>The environmental assessment/systems analysis will include: (a) review of existing environmental, engineering and cost data; (b) identification of important pollutants to all media and projection of attainable emission levels, including engineering assessment of emission sources within the process and of control efficiencies and costs, and including analysis of present and future environmental standards; (c) identification of missing information and design of a program to develop such information, including (in selected cases) acquisition of necessary missing data; and (d) design and execution of a source sampling and ambient monitoring program on selected existing and future fluidized-bed combustors.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>D. B. Henschel</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUND\$ OBLIGATED		ESTIMATED COMPLETION DATE	
\$500 K		Thru 9/82	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAM</b>	
TITLE OF PROJECT <b>Environmental Assessment of Disposal of Solid and Liquid Wastes from FBC</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="margin-left: 40px;"> <b>D.B. Henschel, IERL/RTP, Program Manager</b>  <b>R.A. Chapman, EPA - Cincinnati, Project Officer</b> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b>          In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p style="margin-left: 40px;">Laboratory and field studies will be conducted to evaluate the potential for adverse environmental impact from the disposal in various environments such as on the land, in mines or in the ocean, of solid and liquid wastes from fluidized-bed combustion processes. Laboratory investigations of physical and chemical treatment of these wastes will be required as will laboratory studies of the potential for the manufacturing of products such as concrete from these wastes.</p> <p style="margin-left: 40px;">Wastes from at least three processes will be made available to the contractor for investigation. These processes are: (1) a system that burns high sulfur coal in a fluidized bed of dolomite at 4 atmospheres pressure at 300% excess air, with no dolomite regeneration, (2) a process that burns high sulfur coal in a fluidized dolomite bed at elevated pressures at close to stoichiometric conditions, with dolomite regeneration, and (3) a process that gasifies high sulfur oil in a fluidized bed of dolomite at atmospheric pressure conditions.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>3</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>R.A. Chapman</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>EPA - ORD - OEMI - Cincinnati</b>	
FUNDS OBLIGATED <b>\$200 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>4/75</b>
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAN</b>	
TITLE OF PROJECT <u>Measurements for High Temperature High Pressure Processes</u>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;">Interim - final expected Mar. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>In the effort to develop efficient and environmentally acceptable energy sources, a number of processes that involve process streams operating at elevated temperatures and pressures will be evaluated and commercially demonstrated. Primary among these processes are coal gasification systems and high pressure fluidized bed combustors. In order to adequately evaluate the air pollution potential and control efficiency requirements for these processes it is necessary to make measurements in the process streams at elevated temperatures and pressures. Because of the extreme environment, several factors that do not pose significant sampling problems at lower temperatures and pressures become critical at the elevated conditions. Among these are: test crew safety, materials of construction, preventing process leaks, and damage to the process itself. For these reasons, it has become necessary to develop special measurement techniques for high temperature, high pressure applications.</p> <p>The purpose of this effort is to provide for the evaluation, development, field testing and applications research of the high temperature, high pressure measurement techniques necessary to conduct environmental assessments and technology development projects in the energy and industrial processes areas. The contractor will be responsible for measurement evaluation and development; preparation of guidelines and recommended procedures; solution of specific problems; and, assistance to all project officers and contractors in the application of procedures to specific process streams.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<input type="checkbox"/> PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>William B. Kuykendal</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
<b>IERL-RTP/ EPA</b>		RESPONSIBLE ORGANIZATION	
FUNDING OBLIGATED		STARTING DATE	
<b>\$2000 K</b>		<b>Feb. 76 (Est.)</b>	
F.Y.		ESTIMATED COMPLETION DATE	
<b>75</b>		<b>Thru 12/81 unless otherwise specified</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		ESTIMATED COMPLETION DATE	
		<b>Thru 12/81 unless otherwise specified</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAN</b>	
TITLE OF PROJECT <b>Preliminary Environmental Assessment of the Fluidized-Bed Combustion Process</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Paul F. Fennelly</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>GCA/Technology Division</b> <b>Burlington Road</b> <b>Bedford, Mass. 01730</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="text-align: center;">As part of this preliminary environmental assessment of the fluidized-bed combustion process, the contractor will:</p> <ul style="list-style-type: none"> <li>a) identify the universe of pollutants which could conceivably be emitted from fluidized-bed boilers;</li> <li>b) conduct an engineering evaluation to define those which may be emitted from FBC at levels which are significant; and</li> <li>c) assess control technology for significant pollutants.</li> </ul>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>1</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>D.B Henschel</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL/RTP - EACD - APB / EPA</b>	
FUNDS OBLIGATED <b>\$2000 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>0</b>	STARTING DATE <b>July 1975</b>
		ESTIMATED COMPLETION DATE <b>January 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)  SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAN	
TITLE OF PROJECT <b>Bench Experimental Studies in Support of the Fluidized-Bed Combustion Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. R.R. Bertrand Dr. R.C. Hoke Mr. M.S. Nutkis			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Exxon Research and Engineering Co.</b> <b>Post Office Box 8</b> <b>Linden, New Jersey 07036</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">Bench scale experimental studies are being conducted at elevated pressure in support of the remainder of the EPA fluidized-bed combustion program. A 4-inch i.d. combustor capable of operating at pressures up to 10 atmospheres is being employed. Data are being generated to assess the environmental impact of FBC over a wide range of operating variables for a variety of coal/sorbent combinations. The results of this testing will be used to guide the test program on larger-scale experimental equipment, and to investigate specific technical questions and problem areas that are foreseen or that become apparent on larger experimental units.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<input type="checkbox"/>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<input type="checkbox"/>	
<input type="checkbox"/> RESEARCH GRANT		<input type="checkbox"/>	
PROJECT OFFICER <b>D.B. Henschel</b>		RESPONSIBLE ORGANIZATION <b>IERL/RTP - EACD - APB / EPA</b>	
FUNDS OBLIGATED <b>\$186,629</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>27 June 1974</b>
		ESTIMATED COMPLETION DATE <b>27 Sept. 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAN</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Experimental and Engineering Support of the Fluidized-Bed Combustion Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>D.B. Henschel, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Engineering and generally small-scale experimental support is provided to the EPA fluidized-bed combustion program. This support study will address:</b>  <ul style="list-style-type: none"> <li>a) SO<sub>x</sub> control utilizing a calcium based sorbent, including development of criteria for sorbent selection and optimization of sorbent performance in sorption and regeneration;</li> <li>b) SO<sub>x</sub> control utilizing alternative sorbents;</li> <li>c) NO<sub>x</sub> formation mechanisms in FBC, and means for reducing emissions;</li> <li>d) particulates control requirements, and means for control;</li> <li>e) trace elements control requirements, and means for control;</li> <li>f) means for disposing of, or utilizing, ash and spent sorbent;</li> <li>g) general engineering support as required.</li> </ul>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>D.B. Henschel</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>IERL/RTP - EACD - APB/ EPA</b>	
FUNDS OBLIGATED		STARTING DATE	
<b>\$2000 K</b>		<b>6/71</b>	
F.Y.		ESTIMATED COMPLETION DATE	
<b>75</b>		<b>12/81</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAN	
TITLE OF PROJECT <b>Miniplant Studies in Support of the Fluidized-Bed Combustion Program</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  INTERIM - Final expected Oct., 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The purpose of this effort is to obtain the services required for continued operation of the 0.63 MW (equivalent) fluidized-bed combustion Miniplant and of the existing bench-scale experimental equipment at Exxon Research and Engineering Company. These experimental facilities, built under EPA sponsorship, would be operated in support of EPA's total fluidized-bed combustion program. The effort will include: testing of an alternative particulates control device on the Miniplant; sampling the Miniplant streams for a wide variety of potential pollutants; characterization of the Miniplant sorbent regenerator performance over a range of variables with continuous sorbent circulation between the combustor and the regenerator; and operation of the bench-scale fluidized-bed combustor and regenerator over a wide range of conditions to guide the Miniplant program and to address technical questions and problem areas. This study will play a key role in helping EPA to complete its total environmental evaluation of the fluidized-bed combustion process.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>D. B. Henschel</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
TASK NO.  <b>1</b>		STARTING DATE <b>Sept. 76 (Est.)</b>	
FUNDING OBLIGATED <b>\$2000 K</b>		ESTIMATED COMPLETION DATE <b>Thru 12/81</b>	
F.Y. <b>75</b>		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAN</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Comprehensive Analysis of Emissions from an Atmospheric Fluidized-Bed Combustion Unit</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Mr. Herman Nack</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Battelle Columbus Laboratories 505 King Avenue Columbus, Ohio 43201</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The Contractor will propose an approach for comprehensive analysis of emissions from FBC units, to enable identification of the specific constituents present in the waste streams as quickly and as easily as possible when the streams include a very wide range of constituents which cannot be identified beforehand.</p> <p>The Contractor will then test this approach by conducting a comprehensive analysis of emissions from an existing 6-inch i.d. atmospheric-pressure experimental unit, and will revise the approach as necessary based on the results.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>1</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>D.B. Henschel</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL/RTP - EACD - APB / EPA</b>	
FUNDS OBLIGATED <b>\$73,950</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>Sept. 1975</b>
			ESTIMATED COMPLETION DATE <b>March 1976</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAN	
TITLE OF PROJECT <b>Comprehensive Analysis of Emissions from the CPU-400 Fluidized-Bed Combustion Unit Burning Coal</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Mr. Kenneth E. Phillips Mr. Harold E. Stoner Mr. Michael A. O' Hagan			
NAME AND ADDRESS OF APPLICANT INSTITUTION Combustion Power Co., Inc. 1346 Willow Road Menlo Park, Calif. 94025			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The CPU-400 Process Development Unit, built by EPA to burn municipal refuse in a pressurized fluidized bed, will be operated on coal for a brief time during the fall of 1975 under ERDA sponsorship. IERL/RTP intends to obtain samples from the outlet gas stream and the inlet and outlet solid streams during operation on coal, and to perform a comprehensive analysis using these samples and on-line measurements.</p> <p>Under the initial-phase contract, Combustion Power Co. (CPC) will install the necessary sampling equipment to obtain the necessary samples. Under a separate contract (with CPC or with another organization), samples will be collected and analyses performed.</p> <p>The comprehensive analysis will include consideration of all potential pollutants in appropriate streams, and will include biological testing of selected samples.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		17 Sept. 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER D.B. Henschel	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION IERL/RTP - EACD - APB / EPA	
FUNDS OBLIGATED \$50,670	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE June 1975
		ESTIMATED COMPLETION DATE June 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAN</b>	
TITLE OF PROJECT <b>Design and Construction of a Fluidized-Bed Coal Combustion Sampling and Analytical / Test Rig</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>C.C. Lii, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <p style="margin-top: 20px;">A relatively small, flexible experimental fluidized-bed coal combustion unit will be designed, and constructed at the EPA facilities in the Research Triangle Park, North Carolina. The unit will subsequently be operated in an extended in-house test program to provide EPA with the following objectives:</p> <ol style="list-style-type: none"> <li>1. Comprehensive analysis of emissions from fluidized-bed combustors.</li> <li>2. Testing of alternative sampling and analytical procedures for fluidized-bed combustion.</li> <li>3. Investigation of alternative add-on environmental control devices for fluidized combustion systems.</li> </ol> <p>In this new coal utilization technology, coal is burned in a fluidized-bed of non-combustible material, usually an SO<sub>2</sub>-control sorbent, and boiler tubes are immersed in the bed. The rapid motion of the fluidized particles at the heat transfer surfaces, together with high heat-transfer rates between gas and particles, makes the fluidized-bed a highly efficient heat-transfer medium. Also fluidized-bed boilers offer the potential for inherently low environmental impact simultaneously with reduced power costs.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		<b>2</b>	
<input type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>C.C. Lii</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL - RTP / EPA</b>	
FUNDS OBLIGATED <b>\$1250 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>8/75</b>
		ESTIMATED COMPLETION DATE <b>6/78</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAN	
TITLE OF PROJECT <b>Review of Sampling and Analysis Techniques for the Environmental Assessment of Fluidized Bed Combustors</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The primary objective of the project is to provide reports of "Tentative Procedures for Environmental Assessment of . . . ." for each of three FBC processes. Each document will describe in detail the sampling and analytical procedures that could be employed on each identified stream and for each identified pollutant class. The processes for which the state-of-the-art will be identified include: Atmospheric pressure residual oil gasification/desulfurization; pressurized FBC of coal; and atmospheric pressure FBC of coal.</p> <p>The program will review the literature and will contact knowledgeable individuals associated with the development of FBC processes to identify the influent streams, the effluent streams, and the stream conditions which will be sampled as part of an environmental assessment. This information will be utilized to recommend the preferred procedure for each FBC application, based upon current sampling/analytical technology or minor extension thereof. These recommendations will include, but not be limited to: sampling (of gases entrained aerosols, organics, fugitive emissions, and solids) and analytical procedures (for gaseous, liquid, and solid inorganic compounds; particulate, gaseous, and liquid hydrocarbons).</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		2	
PROJECT OFFICER <b>W.B. Kuykendal</b>		RESPONSIBLE ORGANIZATION <b>IERL - RTP, IPD, PMB</b>	
FUNDS OBLIGATED <b>67,874</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	ESTIMATED COMPLETION DATE <b>1/31/76</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAN</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Effect of Experimental Scale on Emissions from Fluidized-Bed Combustion Unit</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Mr. A.C. Doumas</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Texas Division Dow Chemical USA Freeport, Texas 77541</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>A paper assessment will be conducted of the effect of experimental scale on emissions from fluidized-bed combustion units. The results of this project will be employed by EPA to decide on what experimental scale environmental data must be collected to allow complete environmental characterization of the FBC process, and to permit reliable scale-up of the environmental data to the commercial scale. The Contractor will utilize his background and experience in the areas of fluidization, combustion technology and scale-up to indicate:</p> <ul style="list-style-type: none"> <li>a) for each pollutant, in each process stream and process variation, those factors (if any) which might cause the emissions to be different at larger scale;</li> <li>b) the predicted magnitude of the effect of scale for each pollutant, and the basis for predicting such an effect;</li> <li>c) the reliability with which the effect can be predicted, and thus the importance of obtaining data on a larger scale; and</li> <li>d) the scale on which data would be required to allow accurate prediction of emissions at commercial scale.</li> </ul>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		<b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>2</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>D.B. Henschel</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL/RTP - EACD - APB / EPA</b>	
FUNDS OBLIGATED <b>\$52,510</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>0</b>	STARTING DATE <b>August 1975</b>
		ESTIMATED COMPLETION DATE <b>February 1975</b>	

## NOTICE OF RESEARCH PROJECT

PROJECT NO. (Do not use this space)

SSIE

EPA

77 AAO

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

## TITLE OF PROJECT

Experimental and Engineering Support of the Fluidized Bed Combustion Program

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Project Manager - Dr. D. L. Kearns, Mgr., Fluidized Bed Engineering Research

## NAME AND ADDRESS OF APPLICANT INSTITUTION

Westinghouse Research Labs  
Beulah Road  
Pittsburgh, PA 15235

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).  
In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

The contractor will provide experimental and engineering support for the multi-project EPA program to develop environmental controls for fluidized bed combustion processes. The work includes development of environmental control utilizing calcium-based SO<sub>2</sub> control sorbents, development of environmental control utilizing alternative sorbents for SO<sub>2</sub> control, investigation of NO<sub>x</sub> emissions, control of particulate emissions, control of trace element emissions, disposition of ash and spent sorbent, and general engineering support. The contractor will conduct experimental and engineering studies. The program will extend previous work carried out by Westinghouse in all of the areas identified. The program will develop design and operating data on a variety of fluidized bed combustion concepts, identify test programs and test alternative system components, provide technical support for existing and proposed plants, and provide evaluation of test data.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)

SIGNATURE OF PRINCIPAL INVESTIGATOR

DATE

Dec. 1975

## FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

TASK NO.

PROJECT OFFICER

AGENCY STAFF (Intramural)

J.O. Smith

☒ NEGOTIATED CONTRACT

RESPONSIBLE ORGANIZATION

RESEARCH GRANT

EPA / IERL / RTP

FUNDS OBLIGATED

F.Y.

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

STARTING DATE

ESTIMATED COMPLETION DATE

950,000

12/10/75

12/09/78

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>77    AAO</b>	
TITLE OF PROJECT <b>CAFB Engineering Support</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>S. L. Rakes, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Interim</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Westinghouse will conduct engineering support tasks for the CAFB Demonstration plant on a continuing basis. The studies will be carried out in close coordination with other EPA Contractors working on the development of fluid bed residual oil gasification/desulfurization and will utilize to the maximum extent possible the information generated by other organizations. The program is divided into six tasks:</b>  <ol style="list-style-type: none"> <li><b>1. Sulfur Removal System: Sorbent selection, sorbent disposal, environ. impact and sulfur recovery are subtasks under the first task.</b></li> <li><b>2. Alternative Concepts: Alternative sorbents, fuels, applications, processes, and alternative design and operating concepts are subtasks under this task.</b></li> <li><b>3. Environmental Control Technology Evaluation and Development: Waste gas cleaning, waste water control, waste solids treatment are subtasks.</b></li> <li><b>4. Environmental Impact for Off-design Conditions.</b></li> <li><b>5. Multi-Media Emissions and System Evaluation.</b></li> <li><b>6. Program Assistance to IERL.</b></li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sep 75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>1</b>  PROJECT OFFICER <b>S. L. Rakes</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP-EACD-APB/ EPA</b>	
FUNDS OBLIGATED <b>\$500 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>1/75</b>
		ESTIMATED COMPLETION DATE <b>3/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAO	
TITLE OF PROJECT <b>Demonstration of CAFB Atmospheric Gasifier for Generation of a Clean Fuel Gas from Residual Oil for Use in a Existing (or New) Combustor</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  INTERIM - Final expected Jan. 76.			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  EPA has undertaken a program to develop an atmospheric pressure fluidized bed oil gasification/desulfurization process to provide clean fuel to a boiler which has culminated in the construction and operation of a one-megawatt pilot gasifier. Preliminary conceptual designs of oil gasification/desulfurization systems for full scale power plants have been produced and evaluated, using EPA-Esso data. The concept appears technically feasible, effective in reducing SO <sub>2</sub> , NO <sub>x</sub> , and particulate emissions; and economically competitive with alternative sulfur control options. A working prototype of the oil gasification process installed in an existing power plant is required to demonstrate the concept of a commercially viable scale. This effort is for a second-generation design manual, a preliminary test plan, and the engineering support portion for construction and operation of a prototype plant.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER S.L. Rakes	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		IERL-RTP / EPA	
FUNDS ORIGINATED \$213 K Base 0 Energy		F.Y. 75	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		STARTING DATE Dec. 75 (Est.)	
		ESTIMATED COMPLETION DATE Thru 5/78	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>77      AAO</b>	
TITLE OF PROJECT <b>IERL/Cinn. Support - Solid Waste Assessment - CAFB</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>S. L. Rakes, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Interim</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>IERL/Cinn. - will, through a contract secured from RFP-CI 75-0190, assess the impact of solid waste generated by the CAFB process on the environment.</b>  <b>The tests to be conducted include laboratory analysis of the solid waste and long term leaching tests at selected locations throughout the country.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sep 75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>3A</b>  PROJECT OFFICER <b>S. L. Rakes</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP-EACD-APB / EPA</b>	
FUNDS OBLIGATED  <b>N/A</b>	F.Y.  <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <b>Unknown</b>	STARTING DATE  <b>1/77</b>
		ESTIMATED COMPLETION DATE  <b>1/78</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77    AAO</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Residual Oil Disposition Status Report</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>J. Monk, Staff Scientist</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>A. D. Little, Inc., Acorn Park, Cambridge, Mass. 02140</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objectives of this task are: (1) To determine the approximate supply of residual oil in the U. S. that is likely to be available for use as a fuel now and in the future (1985) and primary factors affecting this supply. What will be the impact of continued U. S. petroleum shortages on the supply? (2) To determine the distribution of this supply as to the geographical location (both production and use) in the U. S.; (3) To determine the present usage of the residual oil, that is, how much is burned, how much is cut back or modified before use, how much is coked, how much is used for feedstock to petrochemical processes or other non-energy uses; and (5) To project how much the supply/demand might be affected if suitable means for environmentally sound use as a fuel (without further processing) were available.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sep 75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>5</b>  PROJECT OFFICER <b>S. L. Rakes</b> RESPONSIBLE ORGANIZATION <b>EPA-IERL-EACD-APB</b>	
FUNDS OBLIGATED <b>25 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>None</b>	STARTING DATE <b>21 Aug 75</b>
		ESTIMATED COMPLETION DATE <b>1 Dec 75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AA0</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Analytical Support to Include Comprehensive Analysis of Hazardous Substances in Residual Oil</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Interim - final expected Mar. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK -</b> (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>As a coordinated part of the national program to develop environmentally sound use of residual oil, EPA is developing necessary environmental data support, including paper studies, demonstrations, monitoring studies and experimental investigations on a variety of equipment. This support effort is to provide for detailed analysis of appropriately selected residual oil samples, to include biological testing and assay of natural radionuclides and determination of trace constituents. Technical analyses include:</p> <ul style="list-style-type: none"> <li>(a) trace constituent analysis</li> <li>(b) petroleum chemistry</li> <li>(c) sample acquisition</li> <li>(d) chemistry of organic analysis</li> <li>(e) assay of petroleum and petroleum products</li> <li>(f) chemistry of inorganic analysis</li> <li>(g) laboratory procedure to include identification of samples and compilation of analytical results.</li> </ul>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>S. L. Rakes</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
TASK NO. <div style="text-align: center; font-size: 1.2em;">6</div>			
FUNDS OBLIGATED <div style="text-align: center; font-size: 1.2em;">\$200_K</div>	F.Y. <div style="text-align: center; font-size: 1.2em;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <div style="text-align: center; font-size: 1.2em;">Feb. 76 (Est.)</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center; font-size: 1.2em;">6/76</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <div style="text-align: center; font-weight: bold;">77AAO</div>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation and Support Studies on Alternate Methods and Environmental Assessment for the Environmentally Sound Use of Residual Oil</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="margin-top: 20px;">INTERIM - Final expected Jan. 76.</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-top: 20px;"> <p>EPA is developing necessary environmental data on the CAFB process. This part of the EPA program is to be an overall environmental assessment and systems analysis of the use of residual oil, conducted on a level-of-effort bases; the continually refined and updated output of this analysis will be employed to guide the remainder of the EPA program. The contractor selected for this analysis will also provide broad technical support and program assistance in this technology area.</p> <p>The environmental assessment/systems analysis will include: (a) review of existing environmental, engineering and cost data; (b) identification of important pollutants to all media and projection of attainable emission levels, including engineering assessment of emission sources within the processes and of control efficiencies and costs, and including analysis of present and future environmental standards; (c) identification of missing information and design of a program to develop such information, including (in selected cases) acquisition of necessary missing data; and (d) design and execution of a source sampling, fugitive emission and/or measurement program on selected existing and future residual oil utilization and treating units.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		6	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>S.L. Rakes</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDS OBLIGATED <b>\$200 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Dec. 75 (Est.)</b>
		ESTIMATED COMPLETION DATE <b>Thru 6/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	
		EPA	
		77    AAO	
TITLE OF PROJECT			
<u>Preliminary Environmental Assessment of CAFB</u>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Dr. A. S. Werner, Staff Scientist			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
GCA/Technology Division, Burlington Road, Bedford, Mass. 01730			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>Task 1 - Conduct a "Devil's Advocate" Preliminary Environmental Assessment of the CAFB Process.</b></p> <p><b>Task 2 - Determine the tests which should be run on the ESSO Unit.</b></p> <p><b>Task 3 - Evaluate the tests made on the ESSO Unit</b></p> <p><b>Task 4 - Prepare a final report with recommendation to IERL-RTP for follow up on (1) ESSO Projects, (2) Demonstration, (3) Environmental Assessment lapse</b></p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
N/A		17 Sep 75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		S. L. Rakes	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		EPA-IERL-EACD-APB	
TASK NO.		STARTING DATE	
9		15 Aug	
FUNDING OBLIGATED		ESTIMATED COMPLETION DATE	
50 K	75	15 Jan 76	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.			
None			



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77AA0	
TITLE OF PROJECT <b>Sampling and Analysis for Inorganic Species in Process Streams</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Interim - final expected Mar. 76.			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>EPA's commitment to environmentally assess and to develop control technology applicable to coal gasifiers, coal liquification, chemical coal cleaning and industrial processes has created a need to evaluate the composition of process and effluent streams for an extensive number of inorganic species. Previous efforts have been directed towards the sampling and analysis of oxidized inorganic forms; e.g., SO<sub>2</sub>, NO<sub>x</sub> and metal oxides. Very little effort has been directed towards the evaluation and standardization of measurement techniques for reduced inorganic compounds. This effort will be directed toward the development &amp; application of sampling and analysis procedures for the complete range of inorganic species.</p> <p>The purpose of this effort is to provide for the evaluation, development, field testing and applications research of the inorganic substances sampling and analytical procedures necessary to conduct environmental assessments and technology development projects in the energy and industrial processes areas. The contractor will be responsible for: measurement evaluation and development; preparation of guidelines and recommended procedures; solution of specific problems; comprehensive analysis of samples; and, assistance to project officers and contractors in the application of procedures to specific process streams.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		R. M. Statnik	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		IERL-RTP / EPA	
TASK NO.		STARTING DATE	
9		Feb. 76 (Est.)	
FUNDING OBLIGATED		ESTIMATED COMPLETION DATE	
\$200 K		6 / 76	
F.Y.		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
75			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAP</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Assessment of Atmospheric Effluents from Coal Liquefaction</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">Interim - final expected May 76.</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Coal combustion contributes approximately 80% of the total weight of sulfur oxide emissions from stationary source fossil fuel combustion. The annual consumption of coal in these operations is expected to triple by the year 2000 to meet expected power requirements. However, the recognition of the hazards to human health and natural environment from the continuation of these SO<sub>x</sub> emissions has resulted in the establishment of air quality regulations which either limit the maximum sulfur content of the fuel to be combusted or establish a limit on the quantity of SO<sub>x</sub> which may be emitted into the atmosphere.</p> <p>The purpose of this project is to provide for a detailed systems study of the developing coal liquefaction industry. This study will result in an environmental assessment of potential atmospheric emission problems which would hinder the development of needed technology for the production of clean-burning liquid fuels from coal. From this study the requirements for application of existing or development of new technology for controlling atmospheric pollution from coal liquefaction would be identified. Appropriate programs for needed development and/or demonstration of the required control technology would be established.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		8	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Lloyd Lorenzi, Jr.</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDS OBLIGATED <b>\$465 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>-</b>	STARTING DATE <b>Apr. 76 (Est.)</b>
		ESTIMATED COMPLETION DATE	

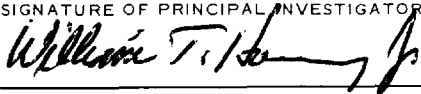


U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAQ	
TITLE OF PROJECT <b>Program Support in Fossil Fuel Processing and Synthetic Fuels</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Interim - final expected Apr. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The IERL-RTP is presently conducting research into environmental assessment of process technology and environmental controls for fuel processing and synthetic fuels. The Laboratory needs increasing effort in program support and an independent appraisal of the on-going environmental assessment, control technology development and process development studies. The complexity of this technology and the need to interface with both EPA laboratories and other agency programs require effort and techniques beyond presently available capabilities.  The purpose of the proposed effort is to: (1) satisfy a continuing need for systems analysis and program support in coal processing, coal liquefaction, coal gasification and shale oil; (2) provide a viewpoint that is independent of contractors working on environmental assessment, control technology development, and process development; (3) provide assistance to EPA in reviewing and evaluating literature, reports and on-going efforts.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		1	
<input type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Mark J. Stutsman</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED <b>\$51.6 K Base</b> <b>\$200 K Energy</b>		F.Y. <b>75</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		STARTING DATE <b>Mar. 76 (Est.)</b>	
ESTIMATED COMPLETION DATE <b>Thru 7/77</b>			

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAQ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Control Technology Development in Fuel Treatment, Processing and Conversion Converter Streams</b> <small>GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.</small>  <div style="text-align: center;">Interim - final expected Feb. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). <small>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small> <p>Both the Federal Government and private industry are currently funding research in fuel conversion with major emphasis on the conversion aspects of the technology. However, it is important that the environmental considerations of fuel conversion may be ignored or neglected.</p> <p>For some pollutants adequate control technology may exist; however, these controls must be evaluated to determine their effectiveness and adequacy. For other pollutants, controls are known to be inadequate or non-existent, and in these cases controls must be improved or new ones developed. There are organization involved in developing some of the needed control technology; however, these efforts are proving inadequate to meet the problems at hand. Also, whatever systems are developed will need a consistent approach to their evaluation which considers the total environmental problems and not those of just a single pollutant.</p> <p>The goal of this project is to define, develop, evaluate and demonstrate environmentally acceptable and efficient control technologies for fuel treatment, processing and conversion systems.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <div style="text-align: center;">2</div>	
		PROJECT OFFICER <div style="text-align: center;">William I. Rhodes</div>	
		RESPONSIBLE ORGANIZATION <div style="text-align: center;">EPA</div>	
FUNDS OBLIGATED \$50K Base \$200 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE Jan. 76 (Est.)
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA 77AAQ	
TITLE OF PROJECT <b>Sampling and Analysis Methods for POM &amp; Other Organic Pollutants</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Interim - final expected Feb. 76.</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The ability of some polycyclic and other organic material to produce cancer has been known for some time. Field studies dealing with this class of compounds as pollutants have been relatively few and usually limited in scope. Part of the reason for this has been the complexity and expense of sampling and analysis for POM. However, increased efforts in environmental assessment and technology development for stationary sources of organics will require that engineers and scientists deal with these problems, and with the need for methods development testing and applications research. Adequate and cost-effective methods for POM and other organic pollutants becomes even more imperative in light of the nature of many of the energy-related EPA projects.</p> <p>The purpose of this effort is to provide for the evaluation, development, field testing and applications research of the organic substances sampling and analytical procedures necessary to conduct environmental assessments and technology development projects in the energy and industrial processes programs. The contractor will be responsible for: measurement evaluation and development; preparation of guidelines and recommended procedures; solution of specific problems; comprehensive analysis of samples; and, assistance to all project officers and contractors in the application of procedures to specific process streams.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER L. D. Johnson	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION IERL-RTP / EPA	
FUNDS OBLIGATED \$50 K Base \$200 K Energy		F.Y. 75	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
		STARTING DATE Jan. 76 (Est.)	
		ESTIMATED COMPLETION DATE 7/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <div style="text-align: right; font-size: 1.2em;">77AAO</div>	
TITLE OF PROJECT <div style="text-align: right;">Control Technology Development for Fuel Conversion System</div>			
<div style="text-align: center;"> <del>Waste Utilization and Disposal</del>  GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.   Interim - final expected Apr. 76 </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p>EPA is presently conducting research into process technology and environmental controls for synthetic fuels. In order to assure development of emission controls and clean fuel processes concurrent with synthetic fuel technology, IERL-RTP needs a Control Technology Development Program which will result in controls for air, water and wolid waste pollution from fuel conversion plants. Concurrent environmental assessment programs in fuel conversion and coal preparation will provide a base of information on environmental impact from which the contractor will develop controls under the proposed contract.</p> <p>The purpose of the proposed contract is to identify and develop needed control technology for the treatment of solid and liquid wastes from fuel conversion processes and the preparation, storage and feeding of coal to converter systems. The program will provide to the coal conversion industry a basis for design, operating characteristics, cost estimation and comparative analysis for control systems.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		6	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER	
<input type="checkbox"/> RESEARCH GRANT		Mark J. Stutsman	
		RESPONSIBLE ORGANIZATION	
		IERL-RTP/ EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$200 K	75		Mar. 76 (Est.)
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E681-AH	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Support Studies of Pollutant and Waste Control in Fluidized-Bed Combustion/Regeneration Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>William T. Harvey, Jr., ERDA, Project Director</b> <b>D. Bruce Henschel, EPA, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Argonne National Laboratory</b> <b>9700 South Cass Avenue - Argonne, Illinois 60439</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-left: 40px;"> <p>(1) Objectives - to conduct the following studies</p> <ul style="list-style-type: none"> <li>a. sorbent performance for SO<sub>2</sub> control at bench scale</li> <li>b. one-step and two-step regeneration at laboratory and bench scale</li> <li>c. investigation of alternative regeneration schemes</li> <li>d. effect of pretreatment and enhancement additive for sorbents</li> <li>e. identification of alternate sorbents</li> <li>f. mathematical model for SO<sub>2</sub> capture and NO<sub>x</sub> formation</li> <li>g. laboratory and bench scale studies of NO<sub>x</sub> formation and emissions</li> <li>h. techniques for NO<sub>x</sub> emission reduction</li> <li>i. characterize particulate emissions as functions of operating conditions</li> <li>j. assess alternate size particulate cleanup systems</li> <li>k. fate and control of trace element emissions</li> <li>l. disposal and utilization of spent sorbent</li> </ul> <p>(2) Approach - all studies to be performed during schedules runs required by existing Contract No. 14-32-0001-1780 for Division of Coal Conversion and Utilization's Direct Combustion Branch.</p> <p>(3) Progress consists of near completion of bench combustor studies on velocities, feed methods and baffling; on fine particulate emissions characterization and on trace element emissions characterization.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE 1-27-76	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>William T. Harvey</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION <b>ERDA</b>	
<input type="checkbox"/> RESEARCH GRANT		1-6	
FUNDS OBLIGATED <b>\$500 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>2/76</b>
		ESTIMATED COMPLETION DATE <b>3/77</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-IAG-D5-E767-AI	
TITLE OF PROJECT <b>Application of Fluidized-Bed Technology to Industrial Boilers</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>Michael H. Farmer</b>  Staff Advisor  Corporate Research Staff </div> <div style="width: 45%;"> <b>Franklin Spooner</b>  Staff Consulting Engineer  Corporate Research Staff </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Exxon Research and Engineering Co.</b> <b>Government Research Laboratory</b> <b>P.O. Box 101      Florham Park, New Jersey 07932</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
Objectives	Assess the potential for Industrial Conservation Determine the impact on oil and gas consumption Assess the economic impact Determine the demand Assess environmental impact Determine and define technical requirements for representative applications.		
Approach	Formulate Implementation Scenarios Collect data relative to system requirements Develop estimates of demand in 1978-2000 time-frame for selected scenarios Formulate demand forecast		
Current Plan	Survey Coal users Assess potential for system implementation by coal users, non coal users Examine representative potential system users based on economics		
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>None</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Michael Farmer</b>	DATE  <b>August 27, 1975</b>
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.  <b>1</b>	PROJECT OFFICER <b>William J. Murtyn</b>
<input type="checkbox"/> AGENCY STAFF (Intramural)			RESPONSIBLE ORGANIZATION <b>FEA</b>
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
FUNDS OBLIGATED <b>\$300 K Base</b> <b>\$71 K Energy</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE  <b>2/75</b>
			ESTIMATED COMPLETION DATE  <b>3/76</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA EPA-IAG-D5-E721-EY	
TITLE OF PROJECT Cost Comparison of Commercial Pressurized and Atmospheric Fluidized-Bed Power Plants to a Conventional Coal-fired Power Plant with Flue Gas Desulfurization			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. John T. Reese, Chemical Engineer Power Research Staff 503 Power Building Chattanooga, TN 37401 (615) 755-2884			
NAME AND ADDRESS OF APPLICANT INSTITUTION Tennessee Valley Authority Knoxville, Tennessee			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The objective of this project is to compare the commercially projected costs of both atmospheric and pressurized fluidized-bed power plants to the costs of a conventional coal-fired steam power plant utilizing flue gas desulfurization.  The approach includes: (1) establishment of design basis for comparison of each power plant; (2) development of conceptual design and cost estimates for each power plant; (3) comparison of total costs for each plant concept. NASA-ECAS results will provide conceptual design and cost estimates for the fluid-bed cases.  Current plans include: (1) development of level of detail required for cost estimates; (2) identification of major system components for each concept; (3) definition of flue gas scrubber design criteria.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>John T. Reese</i>	
		DATE  8/13/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		John T. Reese	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		Power Research Staff, TVA	
TASK NO.  3		STARTING DATE  June 1975	
FUNDS OBLIGATED  150 K		ESTIMATED COMPLETION DATE  November 1976	
F.Y.  1975		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  1	

# SYNTHETIC FUELS







U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAP	
TITLE OF PROJECT <b>Environmental Symposium on Synthetic Fuels</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Frank Ayer - Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Research Triangle Institute P.O. Box 12194 Research Triangle Park, North Carolina 27709</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The Contractor shall perform all the following subtasks toward setting-up, running and reporting on a conference for about 300 people for about 3-1/2 days.  <ol style="list-style-type: none"> <li>1. Work in conjunction with EPA in determining conference site/location.</li> <li>2. Prepare and send out invitations for papers (using EPA suggested topics and people).</li> <li>3. Prepare, print and send out agenda (agenda to be based on similar symposium held in May 1974).</li> <li>4. Prepare and send out invitations to attendees.</li> <li>5. Conduct all correspondence with speakers and attendees.</li> <li>6. Perform all registration requirements such as name tags, attendee list and substitutions, programs, etc.</li> <li>7. Obtain paper pre-prints and distribute.</li> <li>8. Coordinate and assist in lodging and transportation but prime responsibility belongs to the individuals. (Payments for lodging and transportation are attendees responsibility.)</li> <li>9. Contractor will identify audio visual equipment requirements.</li> <li>10. Actual operation and coordination of all conference activities (requires contractor personnel on-site during conference). This includes operation of audio visual equipment.</li> <li>11. Post-conference coordination of all papers and non-technical editing of papers and discussions so that they are in suitable form for publication as a symposium proceedings. A reproducible master copy of this is required.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>W.J. Rhodes</b>	
		DATE  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>1</b>	
		PROJECT OFFICER <b>W.J. Rhodes</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB / EPA</b>	
FUNDS OBLIGATED <b>\$51 K Base \$255 K Energy</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>May 1975</b>
		ESTIMATED COMPLETION DATE <b>Jan. 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		<i>Form Approved</i> OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <div style="text-align: center; font-weight: bold; font-size: 1.2em;">77AAP</div>	
TITLE OF PROJECT <div style="text-align: center; font-weight: bold;">Environmental Evaluations of Synthetic Fuels</div>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding-top: 20px;">John Cleland - Principal Investigator</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION Research Triangle Institute P.O. Box 12194 Research Triangle Park, North Carolina 27709			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="padding: 10px;"> <p>The Contractor shall perform the following subtasks:</p> <ol style="list-style-type: none"> <li>1. Physical and chemical coal cleaning documentation (literature studies, etc.)</li> <li>2. Survey and evaluation of specific pollutants from clean fuels processes</li> <li>3. Reporting and presentations in the area of coal characterization</li> <li>4. Computer processing of coal data</li> <li>5. Synthetic fuel related pollutant studies; general program support</li> </ol> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <div style="text-align: center; font-weight: bold;">N.A.</div>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center; font-weight: bold;">17 Sept. 1975</div>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-weight: bold;">1</div>	
		PROJECT OFFICER <div style="text-align: center; font-weight: bold;">M.J. Stutsman</div>	
		RESPONSIBLE ORGANIZATION <div style="text-align: center; font-weight: bold;">IERL-RTP, EACD, FPB / EPA</div>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$43,800	75	1	11 Aug. 1975
		ESTIMATED COMPLETION DATE	
		Feb. 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAP</b>	
<b>PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE</b>			
TITLE OF PROJECT <b>Environmental Assessment of Low BTU Gasification and its Utilization</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">Interim - final expected Mar. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <p>Both the Federal Government and private industry are currently funding research in fuel conversion with major emphasis on the conversion aspects of the technology. However, it is important that the environmental considerations of fuel conversion not be ignored or neglected.</p> <p>In order that the most efficient and environmentally acceptable systems be developed, it is necessary that environmentally-related data be collected on the systems being developed now and in the near future. This will provide the basis for defining, developing and demonstrating any required environmental safeguards prior to a fuel conversion system's commercialization.</p> <p>The purpose of this project is to set-up and carry out the necessary management functions for obtaining environmentally-related data on fuel conversion systems and to actually obtain the desired information through sampling and analysis.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>William J. Rhodes</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION	
<input type="checkbox"/> RESEARCH GRANT		<b>RTP / EPA</b>	
FUNDING OBLIGATED <b>\$50 K Base</b> <b>\$755 K Energy</b>		F.Y. <b>75</b> NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. STARTING DATE <b>Feb. 76 (Est.)</b> ESTIMATED COMPLETION DATE <b>12/77</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAP</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Assessment of High BTU Gasification</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;">Interim - final expected May 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Both the Federal Government and private industry are currently funding research in fuel conversion with major emphasis on the conversion aspects of the technology. However, it is important that the environmental considerations of fuel conversion not be ignored or neglected. In order that the most efficient and environmentally acceptable systems be developed, it is necessary that environmentally related data be collected on the systems being developed now and in the near future. This will provide the basis for defining, developing and demonstrating any required environmental safeguards prior to a fuel conversion system's commercialization.</p> <p>The purpose of this project is to set-up and carry out the necessary functions for obtaining environmentally-related data on high Btu gasification systems, to actually obtain the desired information through sampling and analysis, and to assess these data.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		3	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER William J. Rhodes	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION EPA	
FUNDS OBLIGATED <b>\$265 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Apr. 76 (Est.)</b>
			ESTIMATED COMPLETION DATE <b>6/77</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<b>77AAP</b>	
TITLE OF PROJECT <b>Input Material Characterization</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Harold Gluskoter - Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>University of Illinois (State Geological Survey) Natural Resources Building Urbana, Illinois 61801</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Coals are being analyzed for major, minor and trace constituents using techniques developed in the first contract. Also, techniques are being refined to provide better or more applicable methods of analysis.</b>  <b>Future work will continue this and the contractor will be a focal point for collection and analysis of data from other sources.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>4</b>  PROJECT OFFICER <b>W.J. Rhodes</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB / EPA</b>	
FUNDS OBLIGATED <b>\$87,400</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>27 June 1974</b>
		ESTIMATED COMPLETION DATE <b>June 1976</b>	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAP</b>	
TITLE OF PROJECT <b>Shale Oil Environmental Assessment and Data Acquisition</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>L.G. Neal - Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>TRW Transportation and Environmental Operations One Space Park Redondo Beach, California 90278</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The major objectives of this project include the acquisition of the necessary background data on the principal industrial shale recovery process and U.S. shale resources; a comparative assessment of their environmental acceptability and the evaluation of technologies available for the control of air, water, and solid waste emissions.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR   <b>17 Sept. 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>7</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER <b>L. Lorenzi, Jr.</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB / EPA</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$260,000</b>	<b>75</b>	<b>3</b>	<b>28 May 1975</b>
			ESTIMATED COMPLETION DATE <b>May 1978</b>



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  <b>77AAP</b>	
TITLE OF PROJECT <b>Preparation of Environmental Assessment Procedures</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Gene Burns</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>TRW Systems Group TRW, Incorporated One Space Park Redondo Beach, California 90278</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>The project will identify the sampling and the analysis state-of-the-art for Coal Liquefaction. The state-of-the-art document will include R/D needs, literature review, sampling and analysis procedures utilized, etc. The work will identify the streams and the stream component types (particulate, organic, liquid, etc.) which will require sampling. Once the streams have been identified, the average physical parameters of the stream will be identified. The physical characteristics include flow, temperature, pressure, etc. The output will identify appropriate sampling schemes and suggest appropriate analytical schemes to perform an environmental assessment of coal liquefaction processes.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>9</b>  PROJECT OFFICER <b>R.M. Statnick</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB / EPA</b>	
FUNDS OBLIGATED <b>\$49,792</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>Unknown</b>	STARTING DATE <b>6/12/75</b>
		ESTIMATED COMPLETION DATE <b>12/12/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 155-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77AAP</b>	
TITLE OF PROJECT <b>Development of Environmental Assessment Test Strategies</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Gene Burns</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>TRW Systems Group One Space Park Redondo Beach, California 90278</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">The project will develop strategies to perform Environmental Assessments of a Lurgi based coal gasification process and a coal-fired utility boiler equipped with a limestone wet scrubber. The environmental assessment strategy will be directed toward the identification of the potential environmental impact of all the influent and effluent streams associated with the two processes identified above. The testing strategy will develop a matrix of sampling and analytical options which would be suitable for a reiterative assessment of the potential environmental impact of air, solid and liquid streams. Factors affecting the potential testing strategies shall include: stream volumetric flow, pollutant concentrations, potential pollutants which could exist in the stream, and maximum pollutant concentrations anticipated in the receiving media.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, Dental, etc.) <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>9</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Robert Statnick</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-RTP, IPD, PMB/ EPA</b>	
FUNDS OBLIGATED <b>\$700 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>unknown 179</b>	STARTING DATE <b>1 June 1975</b>
		ESTIMATED COMPLETION DATE <b>31 October 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77AAP	
TITLE OF PROJECT <b>Environmental Evaluation of Fossil Fuel Conversion Processes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>W.J. Rhodes, Project Officer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>INTERIM</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>For coal gasification and liquefaction, the operations of start-up, shutdown, process disruptions, maintenance, and chemical material replacement are non-steady state situations that have unique potential pollution problems. These situations shall be investigated and described. The information reported shall include:</p> <ol style="list-style-type: none"> <li>1. each process area or type of equipment affected</li> <li>2. a general description of each operation</li> <li>3. the likelihood, frequency and duration of occurrence</li> <li>4. the location of pollution source</li> <li>5. the potential pollutants</li> <li>6. estimate of pollutant quantities</li> <li>7. possible control mechanisms and effectiveness.</li> </ol> <p>The information reported shall be nonprocess specific; however, where information is readily available for specific processes, it shall also be included.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>W.J. Rhodes</b>	
		DATE  <b>17 Sept. 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>9</b>	
		PROJECT OFFICER <b>W.J. Rhodes</b>	
		RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB / EPA</b>	
FUNDS OBLIGATED <b>\$300 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>3/75</b>
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAP</b>	
<b>PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE</b>			
TITLE OF PROJECT <b>Water Conservation and Pollution Control Alternatives in Coal Gasification and Liquefaction</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Ronald F. Probststein - Project Director</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Water Purification Associates 238 Main Street Cambridge, Massachusetts 02142</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>The objectives of this project are to: (1) quantify and qualify the water requirements for coal conversion processes, (2) examine advanced water/waste-water treatment concepts to minimize water requirements and pollution potential, and (3) evaluate the feasibility of non-evaporative cooling systems. The study will be conducted in two phases. The first will be an overview of coal gasification and liquefaction processes and their relationship to water consumption and liquid waste generation. The second phase will involve detailed, site-specific studies for selected processes.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>17 Sept. 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <b>11</b>  PROJECT OFFICER <b>W.J. Rhodes</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB / EPA</b>	
FUNDS OBLIGATED <b>\$75,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>2</b>	STARTING DATE <b>June 1975</b>
		ESTIMATED COMPLETION DATE <b>June 1977</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA 77ABC-02 77AAP-11, 77AAQ-09	
TITLE OF PROJECT <b>Water Conservation and Pollution Control Alternatives in Coal Gasification &amp; Liquefaction</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Dr. David J. Goldstein, Principal Investigator, (617) 472-7704 Dr. Harris Gold			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Water Purification Associates</b> 328 Main Street Cambridge, MA 02142			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The purpose of the Project is to: (1) quantify and qualify water requirements; (2) examine the applicability of advanced water/wastewater treatment concepts; and (3) evaluate the feasibility of non-evaporative cooling systems for coal conversion installations. In the first phase of the study the contractor will conduct general water use and pollution control assessments for selected processes in the categories of high-Btu gasification, low-Btu gasification, and coal liquefaction. Emphasis will be placed on the process train, with plant auxiliaries and offsite facilities being addressed in a general manner. In the second phase the contractor will conduct detailed site-specific studies for one process in each of the three categories at three different sites. Two sites will be in the Northern Great Plains while the third will be in the Four Corners Region. Based on hypothetical plant configurations for specific sites the contractor will conduct technical and economic evaluations of the cooling, waste treatment, and process alternatives which may be employed for optimal use of available water and avoidance of pollution problems.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		02 11 09	
PROJECT OFFICER		RESPONSIBLE ORGANIZATION	
James P. Chasse (503) 752-4211 x376		IERL/RTP/EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$225	75	1 1/2	June 10, 1975
ESTIMATED COMPLETION DATE		ESTIMATED COMPLETION DATE	
Dec. 10, 1976		Dec. 10, 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	
		EPA	
		77AAQ	
TITLE OF PROJECT			
Effects of High Temperatures and High Pressure on Particle Collection Mechanisms			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Interim - final expected Mar. 76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>A number of advanced air pollution abatement, waste disposal and energy conversion processes under development require devices for the removal of particulates from gases at high temperatures and/or high pressures. In many of these advanced processes either the technical or economic feasibility of the process is dependent upon adequate particulate clean-up. The development of high-efficiency particulate control devices for these high-temperature, high-pressure application is hindered by the lack of fundamental information on the mechanics of aerosols at high temperatures and pressures.</p> <p>The objectives of this effort are to determine the effects of high temperatures and high pressures on particle collection mechanisms and to identify mechanisms that can be used for high efficiency removal of particles for high temperatures and/or high pressure gas streams. To meet these objectives the project will center around a theoretical and experimental study of the mechanics of aerosols at high temperatures and high pressures.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.  2	PROJECT OFFICER
AGENCY STAFF (Intramural)			Leslie E. Sparks
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			RESPONSIBLE ORGANIZATION
RESEARCH GRANT		IER-RTP / EPA	
FUNDS ORIGINATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$50K Base	75		Feb. 76 (Est.)
\$200 K Energy			ESTIMATED COMPLETION DATE
			7/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAQ</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Design and Construction of a Gas Cleaning Test Facility</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">Interim - final expected Apr. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. EPA is presently conducting research into process technology and environmental controls for synthetic fuels. In order to insure development of emission controls and clean fuel processes concurrent with synthetic fuel technology, the IERL-RTP will require a bench-scale pilot plant to assist in control technology development. The proposed project is a gas cleaning test facility and coal gasifier to be located at the EPA Laboratories in Research Triangle Park, N. C. A Preliminary process design for the unit has been completed and under contract. The proposed effort will provide a bench-scale pilot plant operating under the direct control of IERL-RTP which will allow study of cleanup methods for coal gasification products, by-products and effluents. The facility will allow the Laboratory to place emphasis on the environmental aspects of coal gasification process development.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		3	
		PROJECT OFFICER <b>Mark J. Stutsman</b>	
		RESPONSIBLE ORGANIZATION <b>RTP / EPA</b>	
FUNDS OBLIGATED <b>\$50 K Base</b> <b>\$400 K Energy</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Mar. 76 (Est.)</b>
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA  <b>77AAQ</b>	
<b>PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE</b>			
TITLE OF PROJECT <b>Raw Gas Cleanup Based on Dolomite</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>INTERIM - Final expected Feb. 76.</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b></p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The pressurized producer gas must be expanded from system pressure to 10 psig. This is best accomplished in an expanding turbine-generator set. The power output from this unit exceeds the power requirement to compress the air for the coal gasification step. The excess power so recovered is a net credit to the process. Continued development and further improvement of the process are required to permit the most beneficial commercial application of the process.</p> <p>This task will capitalize on the findings made under the original contract, that elemental sulfur can be produced via this reaction, using the regenerator off-gas. Further investigation and experimentation are required to acquire data adequate for evaluation of the liquid phase Claus process with respect to other schemes for handling the sulfur removed from the fuel gas.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>4</b>	
<input type="checkbox"/> RESEARCH GRANT			
PROJECT OFFICER <b>S. L. Rakes</b>		RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
FUNDING OBLIGATED <b>\$100 K Base</b> <b>\$300 K Energy</b>		F.Y. <b>75</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.		STARTING DATE <b>Jan. 76 (Est.)</b>	
		ESTIMATED COMPLETION DATE	



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAQ</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Development of Control Technology for Products &amp; By-Products of Fuel Conversion/Fuel Utilization Systems</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;">Interim - final expected Feb. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Effective conversion and utilization of domestic fossil fuel resources have become increasingly important in recent years in the light of the fuel supply-demand relationships in the United States. Technology for the achievement of commercial conversion facilities is being heavily supported in both the Governmental and industrial sectors. The product and by-product slates from fossil fuel conversion/utilization systems need to be examined in detail in order to establish that conversion system products and by-products will be usable both with minimal adverse environmental effects and with optimal utilization of the secondary resources produced from the conversion systems. This study would provide for such an evaluation and would additionally define effective programs for insuring the sound environmental utilization of fuel system products/by-products. Appropriate development efforts to support effective environmental utilization would be conducted.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>5</b>	<b>Lloyd Lorenzi, Jr.</b>
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			RESPONSIBLE ORGANIZATION
<input type="checkbox"/> RESEARCH GRANT			<b>RTP / EPA</b>
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$200 K</b>	<b>75</b>		<b>Jan. 76 (Est.)</b>
			ESTIMATED COMPLETION DATE



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 155-R0051	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77ACK	
TITLE OF PROJECT Invitro Cytotoxicity Testing of Source Assessment Samples			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. Michael Waters IERL-RTP			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Northrop Services, Inc. Huntsville, Alabama			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The project will support other work in progress to evaluate the applicability of in-vitro cytotoxicity testing of energy and industrial samples. Laboratory tests will be conducted to determine the percent viability of the test cells and preliminary dose-response characteristics of samples collected from ten industrial and energy sources.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER L. D. Johnson	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB / EPA	
<input type="checkbox"/> RESEARCH GRANT		1	
FUNDS OBLIGATED \$20,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 188	STARTING DATE 7/1/75
		ESTIMATED COMPLETION DATE 6/30/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  <b>77ACK</b>	
TITLE OF PROJECT <b>Assessment of Environmental Effluents from Oil Refining</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;">Interim - final expected May 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b></p> <p>In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>Petroleum refineries consist of a complex of physical and chemical transformation operations. Many of the individual sources of emissions within the refinery have been identified. However, it has been reported that fugitive sources may be the principal emitters of hydrocarbons. Additionally, in the light of domestic energy problems and refinery siting problems, definition of control measures for refineries will assist in refinery site approvals, and environmental control of refinery effluents may have definite cost advantages for refinery operations. The planned project will attempt to define and quantify these areas for refinery study by providing an assessment for application of technology (new or existing) for air, solid, and water effluent control within a petroleum refining complex. The study will quantify the potential for emissions from each of the array of physical and chemical transformation. Attention will be given to "fugitive" or previously unaccounted for emissions, to operations expected to utilize heavier feedstocks and to practiced control technology.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<div style="text-align: center;">1</div>	
PROJECT OFFICER <b>Kenneth Baker</b>		RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDING OBLIGATED <b>\$73.5 K Base</b> <b>\$200 K Energy</b>		F.Y. <b>75</b> NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	
STARTING DATE <b>Apr. 76 (Est.)</b>		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77 BEZ / EPA-IAG-D5-E681-EZ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Transport and Dispersion of Refinery Wastes in Freshwater Coastal Regions</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. Wyman Harrison and Mr. Donald McCown Environmental Scientists Energy and Environmental Systems Division			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Argonne National Laboratory Argonne, Illinois			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Dynamics of oil-fouled lake waters will be examined by tagging water and oily waste with rare earths and determining down-current concentrations of these elements in water samples subjected to neutron activation. This study will begin in waters of southern Lake Michigan.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  -----		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>Wyman Harrison</i>	
		DATE Aug. 29, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 1	
		PROJECT OFFICER <i>William R. Sinclair</i> RESPONSIBLE ORGANIZATION Argonne National Laboratory ERDA	
FUNDS OBLIGATED 75 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE 7/75
		ESTIMATED COMPLETION DATE 6/76	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA IAG-D5-E681-EZ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>"Identification of Refractory Organic Compounds in Treated Refinery Wastewater"</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Dr. Wyman Harrison, Project Director Dr. Leo Raphaelian, Principal Investigator (312) 739-7711 (x5277) Mrs. Carol Chow, Chemist			
NAME AND ADDRESS OF APPLICANT INSTITUTION Energy and Environmental Systems Division Argonne National Laboratory Argonne, Illinois 60439			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<ol style="list-style-type: none"> <li>1) Characterization of refractory organics using GC/MS and LC.</li> <li>2) Take composite samples of             <ol style="list-style-type: none"> <li>a) influent and effluent activated-sludge-plant streams,</li> <li>b) influent and effluent activated-carbon-column streams.</li> </ol> </li> <li>3) Extraction techniques for refractory organics completed.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>Leo A. Raphaelian</i>	
		DATE 19 Jan 76	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		1, 1	
<input type="checkbox"/> NEGOTIATED CONTRACT		2.1, 2.2	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER Dr. J. J. Roberts	
		RESPONSIBLE ORGANIZATION ERDA, Div. Env. Control Technology	
FUNDS OBLIGATED \$75K	F.Y. '75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 1	STARTING DATE June 1975
		ESTIMATED COMPLETION DATE May 1977	

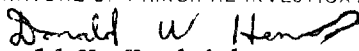
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>EPA-IAG-D5-E-727-FB</b>	
TITLE OF PROJECT <b>Residential Energy Consumption Geographical Analyses</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <span style="float: right;">(301) 730-7800</span> <b>Douglas Harvey, VP, Hittman Assoc., Inc., Columbia, MD 21405 Tel. 730-7800</b> <b>Harry M. Bernstein, Mgr. Energy Utilization Dept., (same address &amp; tel.)</b> <b>Taghi Alereza, Mech. Eng., Principal Investigator, (same address)</b> <b>James E. Reed, Engineer, (same address)</b> <b>Patrick Michael McCarthy, Civil Engineer (same address)</b> <del>XX</del>			
<del>XX</del> <b>Name and address of institution:</b> <b>HITTMAN ASSOCIATES, INC.</b> <b>9190 Red Branch Road</b> <b>Columbia, Maryland 21045 Tel: Area Code (301) 730-7800</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Qualify the impact of selected single-family and multifamily residence modification on residential energy consumption for different geographical areas.</b>  <b>The study will identify the energy consumption associated with characteristic houses in each of ten geographic areas of the U.S. as well as identify the energy savings associated with each house modification.</b> <b>The determinations will be made by a computer program that considers the ambient weather environment, calculates the heat gain or lost by radiation, conduction and infiltration, and gives an hourly, daily, monthly, and yearly printout of heating and cooling loads.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>NA</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>TAGHI ALEREZA</b>	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>1, 2, 3,</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>4, &amp; 5</b>	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>Kenneth L. Credle (GTR)</b> RESPONSIBLE ORGANIZATION <b>DHUD</b>	
FUNDS OBLIGATED <b>\$99,000</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>ONE</b>	STARTING DATE <b>7/75</b>
<b>6/27/75</b>	<b>75</b>	<b>ONE</b>	<b>12/76</b>

**NUCLEAR**

F NUCLEAR



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77ADM</b>	
TITLE OF PROJECT <b>Evaluation of the Concentrations of Plutonium in Humans Residing Near the Rocky Flats Nuclear Test Facility</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>E.W. Bretthauer-Acting Chief of the Methods Development &amp; Analytical Support Branch Environmental Monitoring and Support Laboratory P.O. Box 15027, Las Vegas, NV 89114 (702) 736-2969 Ext. 281</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Office of Research and Development Environmental Protection Agency Washington, D.C. 20460</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. (1) The objective of this study is to determine if the concentrations of plutonium in humans residing in the vicinity of the Rocky Flats Nuclear Facility are greater than plutonium concentrations in humans residing in areas not subjected to plutonium contamination other than that from global fallout. (2) Approach. Task 1: Collect selected tissues from 231 deceased humans and fluids from 300 living humans who have resided in one of three specified areas for at least 5 years. Task 2: Provide plutonium analysis of selected human tissues. Task 3: Provide plutonium analysis of urine samples and quality assurance of analytical data. (3) Progress. Task 1: A contract for sample collection and preparation, as well as the collection of epidemiological information, has been negotiated with the University of Colorado Medical School, Denver, CO. Task 2: An interagency agreement for tissue analysis has been negotiated with the Air Force Technical Applications Center (AFTAC), Patrick Air Force Base, Cocoa Beach, FL. Task 3: A contract has also been concluded with Eberline Instrument Corporation to analyze the urine samples. The following quality assurance data will be provided: (a) Duplicate analysis of 10% of the tissue samples by AFTAC, (b) Contractural duplicate analysis of selected tissues by Eberline Instrument Corporation and LFE Environmental and (c) Analysis of quality assurance samples by all three analytical contractors.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>E.W. Bretthauer</i> DATE <b>August 14, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		<b>E.W. Bretthauer (702) 736-2969 Ext. 281/ EPA</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>Methods Development &amp; Analytical Support Branch</b>	
<input type="checkbox"/> RESEARCH GRANT		<b>Monitoring Systems Research &amp; Development Div.</b>	
TASK NO. <b>01-03-02</b>		STARTING DATE <b>6/75</b>	
FUNDS OBLIGATED <b>\$100K</b>		ESTIMATED COMPLETION DATE <b>9/1/77</b>	
F.Y. <b>1975</b>		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77ADU	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Cooperate with ERDA to Reduce Adverse Environmental Effects from Uranium Mill Wastes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <div style="text-align: center;">Mr. Donald W. Hendricks, Director Richard Douglas Joseph Hans David Bernhardt</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION		Office of Radiation Programs Las Vegas Facility P.O. Box 15027 Las Vegas, Nevada 89114 <div style="text-align: right;">Telephone: 702-736-2969</div>	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="text-align: justify;"> <p>The Energy Research and Development Administration, Division of Operational Safety, with the cooperation and assistance of EPA and the States involved, is undertaking an appraisal of about 17 inactive uranium ore milling sites in five Western States. The immediate objective is to provide to the Congress and the State legislatures engineering studies and cost estimates for long-term stabilization of the radioactive wastes resulting from the milling operations. The Office of Radiation Programs, through its Las Vegas Facility provides technical measurement capability for assessment of the impact of environmental radioactive contamination caused by these tailings sites. Technical reports defining the extent of contamination are being developed and will be provided to the ERDA architect-engineer for use in assessing the cost of remedial action alternatives.</p> <p>Working levels of radon daughters in the environs of the mill site at Salt Lake City, Utah, have already been provided to the State of Utah and ERDA. Three technical reports on radon data and gamma surveys of inactive uranium mill sites are being prepared at this time. One report deals with radon exhalation data on three inactive uranium tailings piles to define the radon-222 source term. The second report presents ambient radon data around the Grand Junction, Colorado mill site to determine the effects of stabilization on radon levels around an inactive uranium mill tailings pile. The EPA has conducted a gamma survey around the inactive tailings piles involved in the ERDA/EPA study to determine the extent of contamination from wind and water erosion. This third report is now being compiled for distribution to interested parties.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;"> Donald W. Hendricks</div>	
		DATE 9/11/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input type="checkbox"/> NEGOTIATED CONTRACT		Don Hendricks, 702-736-2969	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
		Office of Radiation Programs / EPA	
FUNDS OBLIGATED		STARTING DATE	
20,000		April 1974	
F.Y.		ESTIMATED COMPLETION DATE	
75		June 1977	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.			
two			

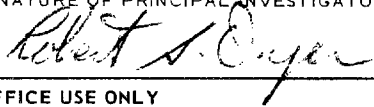
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77 ADV	
TITLE OF PROJECT <u>Environmental Assessment of Long-Lived Radionuclides Resulting From Energy Related Development</u> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <span style="float: right;">ments</span>			
Dr. Gilbert D. Potter, Chief, Exposure/Dose Assessment Branch 702-736-2969			
NAME AND ADDRESS OF APPLICANT INSTITUTION U.S. Environmental Protection Agency Environmental Monitoring and Support Laboratory P. O. Box 15027, Las Vegas, NV 89114			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
OBJECTIVES: To assess potential problems posed by the release of long-lived radionuclides released from nuclear fuel cycles--including extraction, fabrication, use and reprocessing.			
APPROACH: Assess current state-of-the-art and select priority long-lived radionuclides for study in human food chain--soils, plants and animals (domestic and aquatic). Both laboratory and field studies are to be carried out. Field programs are to include baseline studies at selected preoperative sites for projected facilities and at operative sites for monitoring development purposes.			
ACCOMPLISHMENTS: (1) A list of potential radionuclides for study has been made; (2) planning documents for studies have been prepared; (3) analytical equipment for projected studies has been procured.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <i>Gilbert D. Potter</i>	
		DATE 8/14/75	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		Dr. Gilbert D. Potter, 702-736-2969	
<input type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION EPA	
<input type="checkbox"/> RESEARCH GRANT		Monitoring Systems Research and Development Division	
TASK NO. 01 thru 05		STARTING DATE 5/75	
FUNDS OBLIGATED \$160K		ESTIMATED COMPLETION DATE 6/79	
F.Y. 75		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 4	

U.S. ENVIRONMENTAL PROTECTION AGENCY  <b>INTERIM</b>  <b>NOTICE OF RESEARCH PROJECT</b>		<i>Form Approved</i> OMB No. 158-R0081	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		PROJECT NO. (Do not use this space) SSIE EPA  <div style="text-align: center; font-weight: bold;">77ADW</div>	
TITLE OF PROJECT <b>Cost Risk Analysis of Control Technologies for Radionuclides Deposited on Land, Biota, Man, and Water Following a Nuclear Incident</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p><b>This project is designed to furnish data on costs and achievable risk reductions for a wide range of protective actions applicable to radioactively contaminated lands, property, water supplies, personnel, and biota following a nuclear incident.</b></p> <p><b>A baseline aggregate radiation dose to members of the general public following a nuclear incident with no decontamination control technology in effect will be calculated assuming parametric levels of radioactive contamination. The aggregate dose, person-rem, is the result of exposure through all exposure pathways as integrated over the total exposed population and is a measure of risk. Each plausible element of control technology will then be evaluated for cost and for effectiveness in dose reduction. The aggregate dose will be recalculated with the various control technologies in use. Control technology options will be arranged in hierarchical order on a cost effective basis. Finally, health effects will be calculated from the aggregate dose, and cost risk curves, health effects vs cost for a series of increasingly effective protective actions, will be plotted.</b></p> <p><b>A contract to complete this project is currently under negotiation.</b></p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>James M. Hardin 202-755-1188</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
<b>Office of Radiation Programs, EAD / EPA</b>			
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$150,000 (Est.)</b>	<b>1975</b>	<b>2</b>	<b>October 1, 1975</b>
		ESTIMATED COMPLETION DATE	
		<b>October 1, 1977</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY  <b>INTERIM</b> <b>NOTICE OF RESEARCH PROJECT</b>		<i>Form Approved</i> OMB No. 158-R0081	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		PROJECT NO. (Do not use this space) SSIE EPA <div style="text-align: center; font-weight: bold;">77ADX</div>	
TITLE OF PROJECT <b>Assessment of Environmental Impacts on Air, Water, &amp; Radioactive Waste Material from the Thorium/U-233 Fuel Cycle</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Available after contract award - about November 1975.			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Available after contract award - about November 1975.			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>OUTPUT SUMMARY</b> - This project will provide a technological assessment of the Thorium/U-233 fuel cycle to determine the environmental impact from operations of these facilities as they affect air, water, & radioactive waste materials. The investigation will focus on the long-term environmental impact & cover reactor operations, transportation, fuel reprocessing, & ultimate disposal of radioactive wastes. Estimates will be provided on the amounts & forms of long-lived materials in the waste streams & will include determinations of the availability & effectiveness of control technology for removal of these radionuclides.  <b>MAJOR MILESTONES</b> <ol style="list-style-type: none"> <li>1. Characterizations of the fission products generated in the Thorium/U-233 fuel cycle.</li> <li>2. Report on planned releases &amp; design parameters as they affect propagation chains through the air &amp; water environment.</li> <li>3. Description of clean up capabilities &amp; system requirement of control technologies presently proposed or potentially applicable for treating the long-lived radionuclides in the waste streams.</li> <li>4. Report on economic analysis of cost of employing control technology to reduce the waste to the lowest level practicable.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;">Available November 1975</div>	
		DATE <div style="text-align: center;">9/12/75</div>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <div style="border: 1px solid black; padding: 2px;"> <input type="checkbox"/> AGENCY STAFF (Intramural)  <input checked="" type="checkbox"/> NEGOTIATED CONTRACT  <input type="checkbox"/> RESEARCH GRANT         </div>		TASK NO. <div style="text-align: center; font-weight: bold;">01</div>	
		PROJECT OFFICER <div style="text-align: center;">Bruce Mann</div>	
		RESPONSIBLE ORGANIZATION <div style="text-align: center;">Office of Radiation Programs / EPA</div>	
FUNDS OBLIGATED <div style="text-align: center; font-weight: bold;">\$100 K</div>	F.Y. <div style="text-align: center; font-weight: bold;">75</div>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <div style="text-align: center; font-weight: bold;">Two years</div>	STARTING DATE <div style="text-align: center;">January 1976</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center;">January 1977</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77 ADY	
TITLE OF PROJECT <b>Improving Model for Simulating Groundwater Transport of Radioactive Pollutants from Buried Low-Level Radioactive Wastes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Dr. James F. Davis, State Geologist 518-474-5816</b> <b>New York Geological Survey</b> <b>State Museum and Science Service</b> <b>New York State Education Department</b> <b>Albany, New York 12223</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>New York Geological Survey</b> <b>State Museum and Science Service</b> <b>New York State Education Department, Albany, New York 12223</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>(1) Objective Summary: Directed primarily at control of solid low-level radioactive wastes resulting from power production by nuclear reactors. Two major objectives include: (1) determining retention of radioactive and stable nuclides by fractured soil and rocks (Phase I) and (2) improving models simulating groundwater transport of radioactive pollutants after burial (Phase II).</b>  <b>(2) Approach: Feasibility of developing generic method for making field determination of retention of radioactive and stable nuclides by fractured soil and rock (Phase I) will be evaluated with FY 75 funds. Presuming it is feasible, major tasks under this portion of project will be (1) to determine degree of retention actually occurring under field conditions and (2) to develop a method for estimating attenuation which may be expected by fractured rock and soils.</b>  <b>Feasibility of developing generic method for analyzing water pathways for land burial site, including developing transfer coefficient, and estimating impact on environment of burial site and potential dose to man (Phase II) will be partially evaluated with FY 75 funds. Major tasks under this portion of project include: (1) completing determination of feasibility of analyzing water pathways, etc., discussed above and presuming these determination are feasible; (2) performing pathways analysis/dose assessment of an operating burial site under field conditions; and (3) estimating what safe limits of discharge of radioactivity from site are current plans/progress: contract let in late June. Implementation of Phases I and II in progress.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>James F. Davis</b>	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<input type="checkbox"/> PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>G. Lewis Meyer</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>Office of Radiation Programs / EPA</b>	
FUNDS OBLIGATED <b>\$75 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>4 years</b>	STARTING DATE <b>July 1, 1975</b>
		ESTIMATED COMPLETION DATE <b>June 30, 1979</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA  <b>77ADZ</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>"Implementation of a Technology Assessment Methodology for Radioactive Waste Management"</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="display: flex; justify-content: space-between;"> <div> <b>Dr. Stanley Logan</b>  Assoc. Prof. of Nuclear Eng.  The University of New Mexico  Albuquerque, New Mexico 87131 </div> <div style="text-align: right;"> 505-277-2849 </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  The University of New Mexico Albuquerque, New Mexico 87131			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <p>A radioactive waste management technology assessment model is being developed to evaluate the various permanent waste disposal methods and management options, so that the long-term adequacy of provisions for burial is assured and so that the total cost of radioactive waste handling and disposal is minimized.</p> <p>This model has a parallel branch for each major phase in the waste management sequence, beginning with treatment and temporary storage at the fuel reprocessing plant and commencing through transportation to a repository, repository operations, and long-term storage at the repository. The main emphasis has been on the last phase where environmental protection must be insured over a long geologic time frame. Each branch of the model includes fault tree analyses to determine probabilities and magnitudes of various potential releases of radioactive material, an environmental model for calculating transport of radionuclides through environmental pathways to man, individual and population dose and other environmental effects, and an economic model for evaluation of associated damage charges. Implementation is with a computer code AMRAW, which uses a network of transfer coefficients and receptors. AMRAW accommodates input obtained with existing environmental pathway and radiation dose codes.</p> <p>Application of this technology assessment model by EPA is planned for the following uses: (1) to compare and assess future facilities proposed for high-level waste disposal, (2) to help develop the technical bases and guidelines for establishing environmental policy relative to the control of commercial alpha wastes and high-level wastes, (3) to apply information from the model to EPA's continuing effort to develop the generic ability to evaluate the environmental acceptability of presently operating and proposed fuel cycle facilities that produce, treat, store, or dispose of radioactive waste, and (4) to help develop concepts, evaluate feasibility, and establish the control technology for the long-term storage and disposal of high-level radioactive wastes.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>University of New Mexico</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Stanley Logan</b>	
		DATE  <b>9/11/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>01</b>	
		PROJECT OFFICER <b>Stephen M. Goldberg 201-755-4863</b>	
		RESPONSIBLE ORGANIZATION <b>Office of Radiation Programs, Tech. Assessment Division (AW-459)</b>	
FUNDS OBLIGATED  <b>90</b>	F.Y.  <b>1975</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <b>1-3</b>	STARTING DATE  <b>Aug. 1, 1975</b>  ESTIMATED COMPLETION DATE  <b>Sept. 15, 1975</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AEA</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Evaluation of Problems and Limitations of Ocean Dumping as a Radioactive/ Waste Management Alternative</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="display: flex; justify-content: space-between;"> <div> <b>Robert S. Dyer, Project Officer</b>  <b>Office of Radiation Programs (AW-460)</b>  <b>Environmental Protection Agency, Washington, D.C. 20460</b> </div> <div style="text-align: right;"> <b>(Phone: 755-3852)</b> </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>U. S. Environmental Protection Agency</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>Approach:</b> Radioactive wastes were dumped at sea under Atomic Energy Commission licensing procedures from 1946 to 1966. EPA now has specific regulatory requirements to control ocean disposal of radioactive wastes at sea under the Marine Protection Research &amp; Sanctuaries Act of 1972 (PL 92-532). EPA has developed a program to investigate two major formerly-used U.S. radioactive waste dumping sites located off the East and West coasts at depths exceeding 2000 meters using manned and unmanned submersibles, respectively.</p> <p><b>Objectives:</b> The general objective of the program is to determine the fate of the radioactive materials formerly dumped in order to technically evaluate present and potential permit applications for nuclear waste disposal. Specific objectives include: (1) environmental evaluation of formerly-used sites to determine both their potential as future dumpsites and their generic characteristics from which to judge suitability of other potential deepwater dumpsites; (2) condition of packaged radioactive wastes formerly dumped--with this information to be used as a basis for future radwaste packaging requirements; observations of packaging include hydrostatic pressure effects, corrosion rates, and matrix efficiencies for waste retention; and (3) behavior of radionuclides released from containers by determining current vectors and sediment cation exchange capacities.</p> <p><b>Progress:</b> EPA has completed the first successful studies of the major East Coast and West Coast radioactive waste dumpsites, respectively, using the deep submersible ALVIN at a depth exceeding 9000 feet, and the Navy unmanned submersible CURV III at depths of 3000 and 6000 feet. Some sediment radioanalyses and extensive photographic documentation have been completed. Current-vector measurements are being made and container corrosion studies are being planned.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>(Not Applicable)</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR 	
		DATE <b>Sept. 12, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>01</b>  PROJECT OFFICER <b>R. S. Dyer</b> RESPONSIBLE ORGANIZATION <b>U.S. Environmental Protection Agency</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$100 K</b>	<b>75</b>		<b>8/75</b>
			ESTIMATED COMPLETION DATE <b>January, 1977</b>



# THERMAL

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77AAY	
TITLE OF PROJECT Dry Cooling Tower Demonstration and Performance Study			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Alban G. Spurrell, Manager, Braintree Electric Light Dept., (617) 843-4432 R. Stephen Schermerhorn, R.W. Beck and Assoc. (303) 292-0270			
NAME AND ADDRESS OF APPLICANT INSTITUTION Town of Braintree, MA Braintree Electric Light Dept. 44 Allen Street East Braintree, MA 02184			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  This project will 1) demonstrate the use of a dry cooling tower on a combined cycle (gas turbine/steam cycle) power plant, 2) evaluate the performance of the dry tower/plant design, and 3) determine the environmental effects of the plant. The specific tasks include 1) assessment of steam flow and distribution and temperatures to better define optimal design characteristics, 2) meteorological effects from the plant and meteorological impacts on plant operation and performance, 3) noise generation monitoring and control, 4) air quality considerations on or from the plant, and determine the economic impact of design and operational factors.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
AGENCY STAFF (Intramural)		PROJECT OFFICER	
NEGOTIATED CONTRACT		James P. Chasse	
RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
02		IERI/RTP/ EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$500 K	75	4 201	Sept. 75
			ESTIMATED COMPLETION DATE
			Sept. 79

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77AAY</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Optimizing Wet/Dry Cooling Towers for Water Conservation and Plume Abatement</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. George A. Engiesson, Technical Director, (215) 422-3818</b> <b>Dr. Michael C. Hu, Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>United Engineers &amp; Constructors Inc.</b> <b>1401 Arch Street</b> <b>Philadelphia, PA 19105</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>This project will assess the technical and economic feasibility of minimizing water use and reducing vapor plume discharges from wet/dry cooling towers.</b> <b>The project requires two evaluations:</b> <b>1. Analysis of the technical and economic feasibility of minimizing water use by wet/dry towers for at least five sites within the Western United States. These analyses will include consideration of meteorology, water quantity, and water quality.</b> <b>2. Analysis of the technical and economic feasibility of using wet/dry cooling towers for vapor plume abatement at five sites in the Western United States.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>03</b>  PROJECT OFFICER <b>James P. Chasse</b> RESPONSIBLE ORGANIZATION <b>IERL/RTP/ EPA</b>	
FUNDS OBLIGATED <b>\$160K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>June 17, 1975</b>  ESTIMATED COMPLETION DATE <b>June 1976</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77 ABC	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <del>Beneficial Uses of Warm Water from Condensers of Electric Generating Plants</del> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Principal Investigator: Landis L. Boyd, Assistant Director, Minnesota Agricultural Experiment Station 220 Coffey Hall, Univ. of Minnesota, St. Paul, MN 55101 Tele: (612) 373-0751. Grant Director: Russell V. Stansfield, Warm Water Administrator, Northern States Power Company 414 Nicollet Mall, Minneapolis, MN 55401 Tele: (612) 330-5519.			
NAME AND ADDRESS OF APPLICANT INSTITUTION Northern States Power Company 414 Nicollet Mall Minneapolis, Minnesota 55401			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
(1) a. Evaluate the adequacy and determine the problems of enclosed growth structures as horizontal cooling towers having potential for income. b. Demonstrate methods for economically and reliably heating, cooling, and managing enclosed growth structures using heated water for energy. (2) The project will entail: (1) The construction of a growth structure (1/2-acre greenhouse) with an experimental heating and cooling system. (2) Check-out of heating and cooling systems and installation of instrumentation. (3) Operate w/o crops to evaluate heating systems, instrumentation, and the structure. (4) Operate as a commercial type enterprise and evaluate all parts of the system, both mechanically and agronomically. (5) Make changes based on performance and/or research developments conducted parallel to this project. (6) Issue semi-annual and annual reports plus frequent news releases. (7) Develop contracts with growers to provide warm water and land for their installation of growth structures at the site following completion and beginning of operation of the new Sherburne County Generating Plant. (8) Seek funding to prepare to connect the demonstration structure to the SCGP as soon as it goes into operation if the results of the study are encouraging.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) Agricultural Engineering Univ. of MN		SIGNATURE OF PRINCIPAL INVESTIGATOR Landis L. Boyd	
		DATE 05 Aug 75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO. 01 PROJECT OFFICER None assigned RESPONSIBLE ORGANIZATION IERL/RTP / EPA	
FUNDS OBLIGATED \$250 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 2	STARTING DATE 05/20/75 ESTIMATED COMPLETION DATE 07/01/77

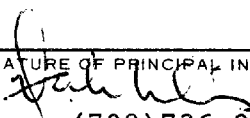
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 155-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77ABC	
TITLE OF PROJECT <b>Water Conservation and Pollution Control Alternatives In Coal Gasification and Liquefaction Processes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Principal Investigators - J. Goldstein Senior Investigators    - R.F. Probst H. Gold C. Calmon                    R.E. Hicks			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Water Purification Associates 238 Main Street Cambridge, Mass.    02142			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">Water requirements for the conversion of coal to alternative fuels will be assessed. This will include process water, cooling water and water for mining, land reclamation, etc. The quality of water effluent from various processes will be determined. Designs will be made for selected coal conversion process plants to be located at selected sites in the Northern Great Plains and in New Mexico. These designs will emphasize optimum use of water and will include the plant and all on-site and off-site auxiliary operations. The major emphasis throughout will be the design of in-plant water treatment facilities to maximize water reuse and recycle.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  D. S. Goldstein	
		DATE  June 17, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER Dr. A.F. Bartsch	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION Corvallis/PNERL	
<input type="checkbox"/> RESEARCH GRANT			
FUNDS OBLIGATED  \$200 K	F Y  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE  4/75
		ESTIMATED COMPLETION DATE  4/76	

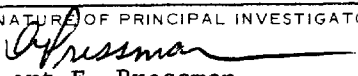
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>77 ABC</b>	
TITLE OF PROJECT <b>Heat and Water Flow Data for Major Energy Intensive Industries</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Not yet selected</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <div style="text-align: center; padding: 10px;">Not yet selected</div>			
<p><b>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).</b>          In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The project will identify the point of discharge and will quantify data on quality and quantity of heat discharged as wastes from energy-intensive industrial processes and energy conversion and fuel conversion facilities. The data will be presented in the form of process technology flow sheet of heat, water, air, steam, etc. The data will include information on quantities of heat and fuel rate per unit of product produced, the quality, and the receiving media.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N/A</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  	
		DATE  	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		03	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Alden Christianson (tentative)</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-CIN / EPA</b>	
FUNDS OBLIGATED <b>\$60K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>0</b>	STARTING DATE <b>12/1/75</b>
		ESTIMATED COMPLETION DATE <b>4/1/75</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77ABC	
TITLE OF PROJECT			
A research demonstration of the Cherne Thermal Rotor, a large scale test.			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Principal Investigator: L. Joseph Boler, Director of Engineering, Cherne Industrial Inc. & Project Director: 5701 South Country Road 18 Edina, Minnesota 55436 Tele: (612) 933-5501			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Cherne Industrial Inc. 5701 South Country Road 18 Edina, Minnesota, 55436			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data).			
In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>The objective is to obtain data on plume definition, drift characteristics, and transport and thermodynamics that can be used to accurately predict environmental phenomena for large thermal rotor systems. The plume will be traversed horizontally &amp; vertically approx. 60meters downwind of the basin by mounting an instrument package on a vertical mast mounted on a flat-bed truck. For measurements further downwind, (300-1500meters) the instrument pkg. can be supported by a helium balloon. Fixed sensors will provide hot and cold water temperatures in the basin. Drift characteristics will be determined by using special instruments ESC has developed.</p> <p>Thermal instruments will be used to define the plume. They measure wet bulb &amp; dry bulb temperatures, relative humidity, wind speed and direction.</p> <p>Drift characterization and transport will be monitored with ESC's Pills II system which measures drift particle size distribution and will be complimented with their water sensitive paper machine.</p> <p>Isokinetic sampling of drift and chemical analysis will provide information for calculating total drift emission and the drift fraction of a module.</p> <p>An Airborne Particle Monitoring System (APS) will be used to monitor the concentration of a tracer chemical downwind from the modules. This will provide continuous drift particle transport information.</p> <p>The processed data output will be comprised of a series of curves which describe the important parameters of interest as a function of the meteorological condition and module spacing. ESC will provide the final report.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
N/A		L. Joseph Boler	
		DATE	
		05 Aug 75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		04	
<input type="checkbox"/> NEGOTIATED CONTRACT			
<input checked="" type="checkbox"/> RESEARCH GRANT			
		PROJECT OFFICER	
		Fredrick A. Roberts (503) 752-4211 ext 378	
		RESPONSIBLE ORGANIZATION	
		IERL/RTP/ EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$50 K	75 75	ONE	8/1/75
			ESTIMATED COMPLETION DATE
			1/15/76



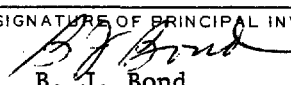


U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77 ABC	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT Advanced Waste Heat Control - Waste Heat & Water Utilization			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Victor W. Lambou  Dr. David N. McNelis </div> <div style="width: 50%;"> Environmental Protection Agency  EMSL-Las Vegas  P.O. Box 15027  Las Vegas, NV 89114 </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Contractor Selection Pending			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <p>(1) Objectives. The objective of this project is to determine the adequacy of the available methods for laboratory, in-situ or remote measurements of hazardous chemicals from cooling systems as required by water quality criteria or effluent standards. Instrumentation/methodology will be modified or developed where deficiencies exist and monitoring specifications will be prescribed.</p> <p>(2) Approach. In use, and available, in-situ and remote sensing techniques for measuring thermal plume and hazardous chemicals in cooling effluents will be surveyed for their adequacy. A prioritized deficiency listing will be prepared and techniques/instrumentation will be modified or developed as appropriate.</p> <p>(3) Current Plans/Progress. Award of contract is pending but anticipated to be executed 9/75.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center;">   (702) 736-2969 </div>	
		DATE  8/15/75	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		08	
		PROJECT OFFICER Dr. David N. McNelis RESPONSIBLE ORGANIZATION Monitoring Operations Division / EPA EMSL-Las Vegas	
FUNDS OBLIGATED \$35 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 4	STARTING DATE 9/75
		ESTIMATED COMPLETION DATE 12/80	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77ABC	
TITLE OF PROJECT <u>Advanced Waste Heat Controls - Waste Heat and Water Utilization</u>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> Mr. A. Pressman Mr. M. Dockter Mr. E. Pressman </div> <div style="width: 60%;"> Remote Sensing Division, Remote Sensing Operations Branch Environmental Monitoring and Support Laboratory, Las Vegas P.O. Box 15027 Las Vegas, NV 89114 Tel: (702) 726-2969, ext. 336 </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Perfect aerial infrared survey techniques of major thermal discharges to develop standard operational procedures for use by environmental regulatory agencies. A rigorous error analysis of the total system will be conducted including laboratory and field measurements and a manual will be published covering all aspects of conducting the subject surveys.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  Albert E. Pressman	
		DATE Aug. 13, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  09  PROJECT OFFICER Albert E. Pressman (702) 736-2969 RESPONSIBLE ORGANIZATION EMSL-LV, Remote Sensing Division / EPA	
FUNDS OBLIGATED 100 K	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 0	STARTING DATE May 1975  ESTIMATED COMPLETION DATE 1976*

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77ABC	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT Aerial Remote Sensor Data Collection, Processing and Analysis for Environmental Monitoring.			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> R.L. Proffit, Project Manager  J.E. Novotny, Systems Engineering  J. Duggan, Industrial P.I.  V. Johnson, R. Costello, H. Coppedge </div> <div style="width: 48%;"> R. Holyer, Data Analysis Support  M. Gray, D. Williams, L. Ozga  G. Kenrick, Sensor/Systems Operation </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION Lockheed Electronics Company, Inc. 16011 El Camino Real Houston, Texas 77050			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The work will involve a development of an SOP describing the methods for production of isothermal maps from thermal scanner data. Maps are to be used as interpretation tools to state-of-the-art tolerances. The technique begins with A to D conversion of scanner data. An atmospheric correction based on homogeneous reference areas of water is then applied to the data to eliminate variation in scan angle and the data forced to a limited number of ground truth temperature points, thus establishing atmospheric temperature corrections. These corrections are then applied to all data acquired in that mission. Another development will be application of aerial multi-spectral techniques in waterbody monitoring. The developmental program would lead from photographic, through airborne spectroscopy, to, ultimately, a mapping scanner. Analyses of data to detect chlorophyll, turbid water, certain elements of water mass structures and some pollutants are possible if proper bands and detectors are specified and installed in a scanning system. Such investigations need to be expanded to determine concentration levels and the error effects caused by various meteorological conditions, in addition to the development of refinements of technique in order to improve confidence level. A basic problem, however, is the separation of interfering molecular combinations.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  Prepared by Abu Bakar Jaafar	
		DATE  September 10, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. 7  9  PROJECT OFFICER Albert E. Pressman  RESPONSIBLE ORGANIZATION NERC/EPA Cincinnati, Ohio 45260	
FUNDS OBLIGATED \$317,090	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  0	STARTING DATE 11/11/74  ESTIMATED COMPLETION DATE 11/10/75

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA EPA-IAG-D5-E721-BE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Advanced Waste Heat Control</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Hollis B. Flora, II, Chemical Engineer</b> <b>Power Research Staff</b> <b>524 Power Building</b> <b>Chattanooga, Tennessee 37401</b> telephone: <b>615/755-2771</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Tennessee Valley Authority</b> <b>Knoxville, Tennessee</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p>The objectives of this project are to evaluate the use of membrane processes, e.g., reverse osmosis and ultrafiltration, for refurbishing power plant discharge waters to make them acceptable for reuse; to determine whether one or more mechanisms may be beneficially utilized to reduce impingement; to evaluate the engineering and environmental aspects of wet/dry cooling towers; and to participate in the evaluation of the Cherne Spray Thermal Rotor System.</p> <p>The approach includes: (1) laboratory studies on commercially available reverse osmosis and ultrafiltration membranes to determine their ability to render power plant waste streams suitable for recycle, (2) studies on the more promising mechanism for reduction of fish impingement, and (3) studies on a prototype wet/dry cooling tower to evaluate the engineering and environmental problems associated with the tower.</p> <p>Current plans include beginning laboratory work in the membrane task around October 1, 1975.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>Hollis B. Flora, II</i>	
		DATE  8/12/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER <b>Hollis B. Flora, II</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		RESPONSIBLE ORGANIZATION <b>Power Research Staff, TVA</b>	
<input type="checkbox"/> RESEARCH GRANT		1-3	
FUNDS OBLIGATED  \$1,325	F.Y.  1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  3	STARTING DATE  May 1975
		ESTIMATED COMPLETION DATE  March 1978	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA EPA-IAG-D5-E721-BF	
TITLE OF PROJECT <b>Waste Heat Utilization</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Project Director: B. J. Bond, Asst. Dir. of Div. of Agr. Development* (ext. 418).</b> <b>Support personnel: C. E. Madewell, Agr. Economist, Agr. Resource Dev. Branch* (ext. 743).</b> <b>J. J. Maddox, Agriculturist, Agr. Resource Dev. Branch* (ext. 743).</b> <b>D. A. Mays, Agriculturist, Soils &amp; Fertilizer Research Branch* (ext. 202).</b> <b>R. S. Pile, Agricultural Engineer, Agr. Resources Dev. Branch* (ext. 743).</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>*Tennessee Valley Authority (Telephone 205-383-4631)</b> <b>Office of Agricultural and Chemical Development</b> <b>Muscle Shoals, Alabama 35660</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>Task I. <u>Soil heating to extend crop growing season</u> involves research to determine the feasibility of using waste heat to extend the growing season of field and horticultural crops. Preliminary soil heating test using electric cables to simulate warm water has looked encouraging. Soil-warming, compared with nonheated soil, has more than doubled the yield of some vegetable crops under field conditions. Further studies of the response of plants to warmed soil will be conducted utilizing discharged hot water at Muscle Shoals and/or the Waste Heat Utilization Center at Browns Ferry.</p> <p>Task II. <u>Biological recycling of nutrients from livestock wastes</u> focuses on the utilization of waste heat in the management of livestock wastes. Research is being conducted to determine if the nutrients in animal wastes can be removed and utilized by aquatic plants, and to determine if these plants can be used as a primary food source for beneficial marine animals, or as a direct feedstuff for rumen animals. The recycling systems are being designed to permit the operation of a livestock enterprise on a limited land area with minimum environmental effects. Nutrients will be removed from the liquified livestock waste by algae and other aquatic plants with subsequent harvest by fish and other aquatic organisms such as clams which will be used as a high protein supplement for livestock rations and for possible human consumption.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>None</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>B. J. Bond</b>	
		DATE <b>Aug 12, 1975</b>	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)			
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>I &amp; II</b>	
<input type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>B. J. Bond</b>	
		RESPONSIBLE ORGANIZATION <b>Tennessee Valley Authority</b> <b>Office of Agricultural &amp; Chemical Development</b>	
FUNDS OBLIGATED <b>\$300K</b>		F.Y. <b>1975</b>	
		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>4</b>	
		STARTING DATE <b>May 7, 1975</b>	
		ESTIMATED COMPLETION DATE <b>June 1979</b>	

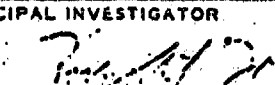
## IMPROVED EFFICIENCY

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77AAJ	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Environmental Assessment of Energy Supply Systems Using Fuel Cells</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Interim - final expected April 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Fuel cells and their potential as non-polluting, energy-conserving power sources have gained great attention in recent months. When viewed alone, they are cleaner and more efficient than our present coal-fired power plants, automobile engines, etc. The question remains, however, is a <u>complete</u> energy supply system using fuel cells cleaner and more efficient than alternative systems? Are the investment and operating costs comparable? This study shall attempt to answer these questions.  Using the information from this study and other sources, we shall decide whether to support or to recommend the development of fuel-cell systems or alternative energy supply systems.  For the purposes of this study an "energy supply system" is a total system for supplying an energy product to a consumer. The system starts with a natural energy source (such as coal or oil shale), processes it, converts it into an intermediate fuel, transports the fuel to the consumer, and there uses it to produce an energy end-product. The energy end-product can be heating, cooling, lighting, motive work via motors, etc.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		PROJECT OFFICER	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>Stanley J. Bunas</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP/ EPA</b>	
TASK NO.  <div style="text-align: center; font-size: 1.2em;">2</div>			
FUNDS OBLIGATED  \$50 K	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE  Mar. 76 (Est.)
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77AAW	
TITLE OF PROJECT <b>Environmental Assessment of Advanced Energy Conversion Technologies</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 20px;">Interim - final expected April 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
<p><b>SUMMARY OF PROPOSED WORK</b> - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p>The purpose of this work is to provide an environmental assessment of a variety of advanced energy conversion technologies. Cycles to be investigated include MHD, high temperature gas turbines, the Feher cycle, potassium topping cycles, thermionics and thermogalvanics. Each cycle will be evaluated for its impact on air pollution emissions, solid waste disposal, and water and liquid waste.</p> <p>The end result of this program will be a preliminary environmental assessment of each cycle and suggestions of appropriate control technology which can be incorporated into the cycles to improve their environmental impact.</p> <p>This procurement requests proposals for a 40,000 manhour level of effort contract to environmentally assess several advanced energy conversion cycles. The study will involve both analytical and field testing studies to evaluate the impact of each cycle on air, water, and land quality. The study will also develop programs plans for the application or development of pollution control technology as required for each of the cycles studied.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		1	
PROJECT OFFICER		RESPONSIBLE ORGANIZATION	
W. Steven Lanier		IERL-RTP / EPA	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
\$200 K	75		Mar.76(Est.)
ESTIMATED COMPLETION DATE			June, 1985



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77ACL	
TITLE OF PROJECT Environmental Assessment of Waste-to-Energy Processes			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  INTERIM - final expected May '76			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  New processes are being developed to recover energy and material resources from waste materials. Little is known of the pollutants emitted from these processes or the optimum methods of pollution control. The purpose of this effort will be to characterize the emissions from new waste material resource recovery process, to establish the most cost-effective and environmentally acceptable methods of pollution control, and to identify new pollution control technology development needs. The objectives of this effort will be met by a wide range of activities which will include: technology overview studies, the acquisition of process data, the development of environmental assessment criteria, the performance of pollution control trade-off studies, the identification of improved pollution control techniques, the development of a general test program for waste-to-energy processes, the selection of test sites, the development of experimental techniques, the development of test plans for specific processes, the performance and analysis of tests on waste-to-fuel processes and the evaluation and reporting of the previous activities.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		1.3	
		PROJECT OFFICER James D. Kilgroe	
		RESPONSIBLE ORGANIZATION IERL-RTP/ EPA	
FUNDS OBLIGATED \$400 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE April 76 (Est.)
		ESTIMATED COMPLETION DATE	

U.S. ENVIRONMENTAL PROTECTION AGENCY  <b>NOTICE OF RESEARCH PROJECT</b>		Form Approved OMB No. 158-R0081  PROJECT NO. (Do not use this space)  SSIE EPA	
PREPARED FOR THE SMITHSONIAN ENVIRONMENTAL INFORMATION EXCHANGE		77ACM	
TITLE OF PROJECT <b>Utilization and/or Stabilization Of Pyrolytic Oil From Pyrolysis Of Agric., Municipal &amp; Other Wastes</b>			
GIVE NAMES, DEPARTMENTS AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>Dr. James A. Knight, Principal Research Scientist, Waste Utilization Laboratory, Engineering Experiment Station</b> <b>Mr. L. W. Elston, Senior Research Scientist, Waste Utilization Laboratory, Engineering Experiment Station</b>			
NAME AND ADDRESS OF AMERICAN INSTITUTION <b>Georgia Institute of Technology</b> <b>225 North Avenue</b> <b>Atlanta, Georgia 30332</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Environmental Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are furnished to investigators who request such information. Your summary is to be used for these purposes.  <p>The broad objective of this program is to maximize the value of pyrolytic oils obtained by pyrolysis of agricultural, municipal, forestry and other wastes so that maximum resource recovery and economical utilization can be realized from these materials. In order to accomplish this objective, an extensive research and development program is proposed which will develop a data base for evaluation of the oils for uses other than as a fuel. Pyrolytic oils have potential as a source of chemicals, as a chemical feedstock, and for specialty uses for specific fractions obtained from the oils. The overall investigative program is divided into three phases which represent distinct areas for research and development but at the same time are interrelated.</p> <p>Phase I, during the first year, would involve primarily physical processing of the oils and characterization of products and fractions obtained by the processing methods. Physical processing would involve various methods of distillation, such as simple distillation at atmospheric and reduced pressure, use of fractionation columns, steam distillation, flash distillation and molecular distillation. Pretreatment of the oil prior to processing will be investigated as a means of improving its processing properties.</p> <p>Phase II, during the second year, would involve chemical processing of the oil and/or fractions from physical processing. Chemical processing would include, but not be limited to, hydrogenation, alkylation and cracking. Products from different chemical processing techniques would be characterized as to their chemical and physical nature.</p> <p>Phase III, during the third year, would be determined in large measure by the results of Phases I and II. An evaluation of the results of Phases I and II would be made to select the most promising processing and treatment methods for upgrading pyrolytic oils. These processing methods would then be investigated at the pilot plant level.</p>			
IDENTIFY PROFESSIONAL PERSONNEL INVOLVED (Medical, dental, etc.) <b>Waste Utilization Laboratory</b> <b>Engineering Experiment Station, Ga. Tech.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR 	DATE <b>6/7/75</b>
FOR OFFICE USE ONLY			
SUPPORT METHOD (check one) <input type="checkbox"/> AGENCY STAFF (In-house) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>2.1</b>	PROJECT OFFICER <b>R.L. Sternberg</b>  RESPONSIBLE ORGANIZATION <b>SHWRL/Cincinnati / EPA</b>
FUNDS OBLIGATED <b>\$325 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>6/75</b>
			ESTIMATED COMPLETION DATE <b>6/77</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77 ACM	
TITLE OF PROJECT <b>Utilization of Wastes as Fossil Fuel Energy Substitutes</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <b>E. Milton Wilson, Project Manager, Systems Division</b> <b>Roland P. Kelly, Vice President-Environmental Programs</b> <b>John M. Leavens, P.E.</b> <b>William H. Parkhill, P.E.</b> <b>Robert E. Mitchell, P.E.</b> <b>Nathan W. Snyder, Ph.D.</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION		<b>The Ralph M. Parsons Company</b> <b>Systems Division</b> <b>100 W. Walnut Street</b> <b>Pasadena, CA 91124 (213) 440-3052</b>	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p><b>Objectives:</b> To investigate processes for the recovery of energy from wastes other than mining wastes. A compilation of information on the types, quantities, and location of wastes will be made; an engineering analysis conducted on selected processes; and development needs recommended.</p> <p><b>Approach:</b> Information will be reviewed and interviews conducted with investigators in the technologies of combustion, pyrolysis, hydrolysis, synthetic fuel generation, and bioconversion. Estimates of the date and costs of commercial operations will be made, mass and energy balances established (including pollutant streams), and pollution control equipment needs described.</p> <p><b>Current Plans:</b> Project initiated on June 25, 1975. Currently in Technology Assessment phase.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>E. M. Wilson</b>	
DATE  <b>July 15, 1975</b>			
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>2.1 A</b>	
PROJECT OFFICER <b>J. Kilgroe</b>		RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB</b>	
FUNDS OBLIGATED <b>\$95,600</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>June 25, 1975</b>
		ESTIMATED COMPLETION DATE <b>Sept. 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		EPA <b>77 ACM</b>	
TITLE OF PROJECT <b>St. Louis - Union Electric Emission Testing Support</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>L. J. Shannon, Project Director</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Midwest Research Institute 425 Volker Blvd. Kansas City, Missouri 64110</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">A refuse processing plant and RDF firing equipment was designed, constructed and operated under a demonstration grant to the city of St. Louis.</p> <p style="margin-left: 40px;">Testing and evaluation on the demo has been performed under a contract to the Midwest Research Institute. Activities under the contract include</p> <ol style="list-style-type: none"> <li>1. planning, performance and evaluation of multi-media pollution tests</li> <li>2. performance and cost studies of the equipment and facilities</li> <li>3. performance of trade-off studies to evaluate alternative equipment operating conditions need to minimize costs and pollution</li> <li>4. preparation of special technology transfer report.</li> </ol>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Sept. 17, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO. <b>2.1 A</b>  PROJECT OFFICER <b>J. Kilgroe</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB</b>	
FUNDS OBLIGATED <b>\$498,800</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>April 9, 1975</b>
		ESTIMATED COMPLETION DATE <b>April 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77 ACM</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Fine Shredding Study for Waste Processing</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>L. J. Shannon, Project Director</b> <b>K. P. Ananth, Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Midwest Research Institute</b> <b>425 Volker Blvd.</b> <b>Kansas City, Missouri 64110</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>A study is being performed to evaluate the costs and benefits of fine shredding MSW for various waste-to-energy processes. The results of this study will be used to fund technology development work by IERL-CINN &amp; IERL-RTP.</b>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <b>Sept. 17, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>2.1B</b>  PROJECT OFFICER <b>J. Kilgroe</b>  RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB</b>	
FUNDS OBLIGATED <b>25 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>	STARTING DATE <b>July 15, 1975</b>
		ESTIMATED COMPLETION DATE <b>Dec. 1975</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77ACM	
TITLE OF PROJECT <b>Materials and Fuel Recovery Processing Research at Pilot Plant Scale</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. Harvey Alter, Director of Research Programs, NCRR</b> <b>Mr. Stu Natof, Staff Engineer, NCRR</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>National Center for Resource Recovery, Inc.</b> <b>1211 Connecticut Avenue, N.W.</b> <b>Washington, D.C. 20036</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>Objectives:</b> In the area of municipal solid waste preprocessing to recover both fuel and material resources of value, this research will attempt to evaluate various hardware and equipment items in terms of their individual and process schematic performance. The main object is a better understanding of the efficiency and combined operating economics and suitability of function.  <b>Approach:</b> NCRR's own facility in Washington, D.C. known as the Equipment Test and Evaluation Facility (ETEF) includes the necessary grinders, air classifiers, blowers, screens, trommels and aluminum and glass recovery units to conduct real-life operational tests. Comparative tests under varied conditions can be made easily, including changing the equipment if needed.  <b>Progress:</b> Currently the facility is essentially ready for operation, and research tests can begin almost immediately:			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		TASK NO. <div style="text-align: center; font-size: 1.2em;">2.2</div>	
		PROJECT OFFICER <b>R.L. Sternberg</b>  RESPONSIBLE ORGANIZATION <b>SHWRL/Cincinnati/ EPA</b>	
FUNDS OBLIGATED \$100 K Base \$200 K Energy	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <div style="text-align: center;">6/75</div>
		ESTIMATED COMPLETION DATE <div style="text-align: center;">12/76</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77 ACM	
TITLE OF PROJECT Preparation, Use and Cost of d-RDF as a Supplementary Fuel in Stoker Fired Boilers			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Dr. Harvey Alter, Director of Research Programs      Mr. William Schlag, Super of Oper. Mr. Stu Natof, Staff Engineer Dr. Gil Jackson, Chemical Engineer Mr. Waldrop, Staff Test Engineer			
NAME AND ADDRESS OF APPLICANT INSTITUTION National Center for Resource Recovery, Inc. 1211 Connecticut Avenue, N.W. Washington, D.C. 20036			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  This Research Grant involves the study of the technical and economic aspects of preparing and using densified forms of municipal solid waste as a supplementary fuel in industrial and institutional stoker coal fired boilers. Investigations will be conducted to establish methodology for preparing densified refuse derived fuel (d-RDF). Process and product characterizations will be developed to enable establishment of specifications for d-RDF. Densification forms will include pellets, briquettes, and cubettes. Independent boiler burn tests and operations will be conducted in conjunction with this research to fully characterize the concept.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	DATE 9-2-75
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	PROJECT OFFICER
<input type="checkbox"/> AGENCY STAFF (Intramural)		2.4	R.R. Stenburg
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			RESPONSIBLE ORGANIZATION
<input type="checkbox"/> RESEARCH GRANT			EPA/MERL/CINN
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	ESTIMATED COMPLETION DATE
300 K	75		6/75 6/77







U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 155-R0081	
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77ACM	
TITLE OF PROJECT Evaluation of Ames Solid Wastes Resources - An Energy Recovery System			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  A.O. Chantland, Project Manager, Public Works Director (Ames) Dr. L. J. Shannon, Midwest Research Institute A.W. Joensen, Iowa State University Dr. E.R. Bauman, Director, ERI, Iowa State University			
NAME AND ADDRESS OF APPLICANT INSTITUTION  City of Ames, Iowa 50010			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The study will assess the effects of using municipal solid waste as a supplementary fuel. Co-firing of MSW with coal in stoker and tangentially-fired boilers will be conducted and since one boiler is the same as at St. Louis, studies will permit confirmation, and comparison of selected St. Louis results. Assessments will be made of the technical and environmental aspects of these co-firing techniques. In addition, technical and economic tests and evaluations will be conducted on the second generation MSW processing facility associated with supplying the refuse derived fuel.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  Engineering & Scientific		SIGNATURE OF PRINCIPAL INVESTIGATOR   DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2.4	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT			
<input checked="" type="checkbox"/> RESEARCH GRANT			
PROJECT OFFICER R.L. Sternberg		RESPONSIBLE ORGANIZATION SHWRL/Cincinnati / EPA	
FUNDS OBLIGATED \$490 K	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 223	STARTING DATE 3/75 ESTIMATED COMPLETION DATE 6/77



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77 ACM	
TITLE OF PROJECT <b>Evaluation of Emissions from MSW-Oil Fired Boiler</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>M. P. Schrag, Principal Investigator</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Midwest Research Institute 425 Volker Blvd. Kansas City, Missouri 64110</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="text-align: center;">EPA and other government authorities are funding demonstrations for processing and firing refuse in oil fired boilers. A study is being performed to identify the costs of meeting air pollution regulation in these boilers. Recommendations will be made on development of improved air pollution control techniques.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  <b>N.A.</b>		DATE  <b>Sept. 17, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>2.6</b>	
FUNDS OBLIGATED <b>\$25,000</b>		F.Y. <b>75</b>	
NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>1</b>		STARTING DATE <b>July 8, 1975</b>	
ESTIMATED COMPLETION DATE <b>Jan. 1976</b>		PROJECT OFFICER <b>J. Kilgroe</b>	
RESPONSIBLE ORGANIZATION <b>IERL-RTP, EACD, FPB</b>		ESTIMATED COMPLETION DATE <b>Jan. 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77 ACM	
TITLE OF PROJECT <b>Rotary Kiln Gasification of Solid Wastes and Sewage Sludge</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>John A. Coffman, Project Director</b> <b>Roger H. Hooverman, Research Engineer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Wright-Malta Corporation</b> <b>Plains Road</b> <b>Ballston Spa, New York 12020</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <p style="margin-left: 40px;">This research will test the thesis that a mixture of raw solid waste and liquid sewage sludge can be converted cleanly into fuel gas, primarily by steam, at temperatures below 1000°F, in a pressurized, externally heated rotary kiln.</p> <p style="margin-left: 40px;">The research equipment, built under contract with Empire State Electric Energy Research Corp. (a New York state utility consortium) is a rotary autoclave (minikiln), 1 ft. in diameter by 3 ft. in length, operating at pressures to 500 psi and temperatures to 1100°F, with provision for steam/air injection under the moving charge.</p> <p style="margin-left: 40px;">Experimentation will determine the influence of these parameters: proportions of liquid to solid waste, types of waste and sludge, size of pieces of trash, maximum temperature, time, atmosphere, pressure, speed of rotation, and fullness of minikiln. The effluent gases will be analyzed and mass balances obtained.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>John A. Coffman</i>	
		DATE  <i>Oct 30, 1975</i>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)  <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <b>2.7</b>  PROJECT OFFICER <b>R.L. Sternberg</b>  RESPONSIBLE ORGANIZATION <b>.SHWRL/Cincinnati / EPA</b>	
FUNDS OBLIGATED  <b>\$250 K</b>	F.Y.  <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  	STARTING DATE  <b>6/75</b>
		ESTIMATED COMPLETION DATE  <b>6/77</b>	


U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA 77 ACM	
TITLE OF PROJECT <b>Co-incineration of Sewage Sludge with Refuse and/or Coal</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. <div style="display: flex; justify-content: space-between;"> <div> Dale C. Bergstedt, Deputy Director of Operations  Wilber A. Blain, Chief Process Engineer  Gary J. Swanson, Staff Engineer  Robert L. Hughes, Superintendent, Seneca Wastewater Treatment Plant </div> <div style="text-align: right;"> 612/222-8423 </div> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION Metropolitan Waste Control Commission 350 Metro Square Building St. Paul, Minnesota 55101			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Purpose of the project is to evaluate the operational worth and environmental aspects, if any, of adding combustible solid matter to wastewater plant sludges and filter cakes, as offsets to part or all of the fuels conventionally used in sludge incineration practice. Impending shortages of natural gas and fuel oil create the sense of urgency in this work. Low-sulfur coal and combustible solid wastes will be utilized as admix materials in various test sequences. Wastes to be tried include shredded combustibles from refuse, in pelletized and loose form, wood chips from urban tree-trimming, shredded tires, and industrial combustible wastes. A full-scale multiple hearth furnace in a modern wastewater treatment plant will be used. Applicability to other incinerators of the 200-plus total in United States' communities will be assessed. Assay of stack gases, after scrubbing, will include relevant chemical properties of public health significance. Scrubber drainage and ash will also be assayed.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;">   Dale C. Bergstedt </div>	
		DATE August 11, 1975	
<b>FOR OFFICE USE ONLY</b>			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2.7	
<input type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER R. A. Olexsey 513/684-8271	
<input checked="" type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION EPA, WRD, MERL, Cincinnati, Ohio	
FUNDS OBLIGATED \$250 K	F.Y. 1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. N/A	STARTING DATE 8/01/75
		ESTIMATED COMPLETION DATE 7/31/77	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		<b>77ACM</b>	
TITLE OF PROJECT <b>Pilot Scale Pyrolytic Conversion of Mixed Waste to Fuel</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="margin-left: 40px;"> Project Director: Dr. John Howard  Project Manager: Mr. James Norton </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Energy Resources Co. Inc.</b> <b>185 Alewife Brook Parkway</b> <b>Cambridge, MA 02138</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <div style="margin-left: 40px;"> <p><b>Objectives:</b> To develop models relating fraction of fuel products (gas, liquid, solid) produced in pyrolysis of various types of solid wastes as function of pyrolyzed conditions. Solid wastes include mixed municipal, agricultural, industrial, etc.</p> <p><b>Approach:</b> Experimental study using small batch pyrolyzer and pilot size (200 kg/hr) fluidized bed pyrolyzer to produce data for model development and verification. Statistical and semi-empirical models will be examined. Status: Project started 1 July 1975.</p> </div>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR <div style="text-align: center;">   <b>J. Norton</b> </div>	
		DATE <b>8/4/75</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		<b>2.8</b>	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>R.L. Sternberg</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>SHWRL/Cincinnati/ EPA</b>	
FUNDS OBLIGATED <b>\$300 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>6/75</b>
			ESTIMATED COMPLETION DATE <b>6/77</b>

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77ACM	
TITLE OF PROJECT <u>Conversion of Solid Waste to Polymer Gasoline</u> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Charles B. Benhem, Research Aerospace Engineer James P. Biebold, Chemical Engineer			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Naval Weapon Center China Lake, California 93555			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <b>OBJECTIVE:</b> To determine the feasibility, both technical and economic, of pyrolyzing the organic fraction of municipal solid waste to sufficient quantity of hydrocarbon gases (ethylene, ethane, etc) to produce chemical intermediates. Phase I of subsequent studies are directed towards the polymerization of hydrocarbon fraction to liquid fuel (polymer gasoline) suitable for internal combustion engine operation.  <b>APPROACH:</b> 1. An existing pyrolysis unit will be operated under various conditions to maximize the production of unsaturated hydrocarbons. 2. A polymerization unit will be designed, fabricated and added to the pyrolysis unit. 3. Data will be obtained over a wide variety of conditions using the combined pyrolysis and polymerization units. Compositional analysis on pyrolysis and polymerization products will be performed for each test condition. 4. Preliminary design of a scaled-up pilot plant will be developed.  <b>PROGRESS:</b> Work on this project is just starting.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  <div style="text-align: center; font-size: 1.2em;">2.8</div>	
FUNDS OBLIGATED  <div style="text-align: center; font-size: 1.2em;">100K</div>		PROJECT OFFICER Charles J. Rogers, Senior Research Chemist RESPONSIBLE ORGANIZATION Solid & Hazardous Waste Research Division MERL-Cincinnati / EPA	
F.Y.  <div style="text-align: center; font-size: 1.2em;">75</div>		NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  <div style="text-align: center; font-size: 1.2em;">2.8</div>	
STARTING DATE  <div style="text-align: center; font-size: 1.2em;">June 11, 1975</div>		ESTIMATED COMPLETION DATE  <div style="text-align: center; font-size: 1.2em;">June 1976</div>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE	
TITLE OF PROJECT <u>Development of a Prototype Portable System for Pyrolysis of</u>		77 ACM	
<del>Agricultural Wastes into Fuels and Other Products</del> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Dr. John W. Tatom, Principal Research Engineer Dr. James A. Knight, Principal Research Scientist			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Georgia Institute of Technology - Engineering Experiment Station 305 Administration Building Atlanta, Georgia 30332			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.			
<p>Agricultural wastes accumulate in the U. S. at the rate of more than 500 million dry tons/year and represent a continuing nuisance and pollution source in the rural environment. Conversely, these wastes represent a potential source of sulfur free fuel and other chemical products. However, the great distances that these wastes must be hauled, their large moisture content, and the necessity for construction of new boilers or furnaces to burn them have made traditional waste utilization concepts impractical or marginal at best. The proposed program, however, involves the design, fabrication, and test of a portable pyrolytic conversion system capable of converting these bulky wet low energy wastes into a dense dry high energy fuel at the source of their original production, thereby saving more than 75% of the transportation costs. Further, the form of these fuels is such that they can be used in existing conventional coal fired boilers and/or mixed with high sulfur coal to form an acceptably low sulfur fuel.</p> <p>In addition, the study will investigate the potential uses of the pyrolysis products other than as fuels, but including the production of methyl-fuel. The latter fuels, because they are liquid, could be used by farmers to operate their equipment, dry their crops, and heat their homes and barns, thus making them almost self sufficient, energy-wise.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2.9	
<input type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER	
<input checked="" type="checkbox"/> RESEARCH GRANT		D. A. Oberacker	
		RESPONSIBLE ORGANIZATION	
		SOLID & Hazardous Waste Research Division	
		MERL-Cincinnati	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT	STARTING DATE
\$73,770	75	(1) 230	5-1-75
			ESTIMATED COMPLETION DATE
			11-30-77



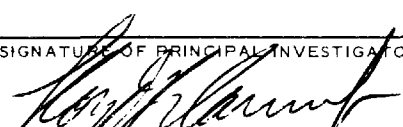
U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77 ACM	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>An Anaerobic Digester Heated by Solar Energy</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="display: flex; justify-content: space-between;"> <span>Mr. David Cassel, Project Director</span> <span>301/268-0717</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Mr. Jess W. Malcolm, Project Coordinator</span> <span></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Dr. Claude Crawford, Assistant Project Director</span> <span></span> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  Environmental Systems, Inc. 150 South Street Annapolis, Maryland 21401			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p>The objective of this project is an in-depth technical feasibility study of the use of solar energy as a means of heating an anaerobic sludge digester. Based on the best information available on solar energy equipment capacities and cost, a solar energy collection, heat storage, and heat transfer system will be designed that will provide sludge digester heating requirements for one of the two active anaerobic digesters at the municipal wastewater treatment plant at Annapolis, Maryland. Estimation will be made of all capital, installation, operating, and maintenance costs of the solar energy system and compared with costs of a digester heating system utilizing sludge gas. Cost comparisons between the two systems and the net value of alternative uses of the sludge gas will be made. Specifications and engineering drawings will be prepared of all hardware associated with the optimal designed solar energy system. In addition, a research plan will be prepared for demonstrating the technical feasibility and economic advantages of using solar energy for heating an anaerobic digester in a wastewater treatment plant. The research plan will include proposed methods for (1) installing the solar energy system, (2) operating the system, (3) evaluating the system through collection of operating data, and (4) evaluating costs, trade-off advantages and disadvantages over other energy sources, and scale-up economics. This part of the work will be planned around two similar digesters operating under identical conditions except one will be heated with sludge gas or oil and the other with solar energy.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  <div style="text-align: center;">   David Cassel </div>	
		DATE  August 11, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		2.10	
<input type="checkbox"/> NEGOTIATED CONTRACT			
<input checked="" type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER  R. V. Villiers 513/684-8268 RESPONSIBLE ORGANIZATION  EPA, WRD, MERL, Cincinnati, Ohio	
FUNDS OBLIGATED  \$30,000	F.Y.  1975	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  None	STARTING DATE  September 1975
		ESTIMATED COMPLETION DATE  Feb. 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77ACM	
TITLE OF PROJECT A Comprehensive study of the state-of-the-art of Bioconversion as a Waste Processing			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  Dr. Florence J. Hicks, Executive Director			
NAME AND ADDRESS OF APPLICANT INSTITUTION Small Business Administration Ebon Research Systems 10100 Quinby Street, Silver Spring, MD 20901			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  The work will involve an intensive review of the techniques available for the bioconversions of waste materials to usable products of energy. These techniques shall include, but not be restricted to, composting, anaerobic digestion, hydrolysis, to sugars and fermentation to ethanol, methanol production, and wet oxidation. These bioconversion techniques shall be critically analyzed by discussing past, present or proposed uses and systems in use or under development, economic and cultural factors that influence system feasibility and implementation; factors which favor the use of one process over another and other factors which may be necessary to achieve the object of this research.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  N/A		SIGNATURE OF PRINCIPAL INVESTIGATOR  Prepared by Abu Bakar Jaafar	
		DATE  September 11, 1975	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one) <input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		TASK NO.  2.10-A	
		PROJECT OFFICER  Clarence A. Clemons	
		RESPONSIBLE ORGANIZATION NERC/EPA Cincinnati, Ohio 45268	
FUNDS OBLIGATED \$7,000	F.Y. 75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. 0	STARTING DATE 6/30/75  ESTIMATED COMPLETION DATE 7/29/75

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA  77ACM	
TITLE OF PROJECT <b>Enzymatic Hydrolysis of Waste Cellulose</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Leo Spano, Chief Pollution Abatement Division John M. Nystrom, Acting Head Engineering Technology Group</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <b>Department of the Army U. S. Natick Laboratories Natick, Mass. 01760</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  <b>OBJECTIVE:</b> The research project will generate technical data needed to facilitate the production of glucose from waste cellulose.  <b>APPROACH:</b> Natick will specifically conduct studies on: <ol style="list-style-type: none"> <li>1. Enzyme production.</li> <li>2. Substrate conditioning.</li> <li>3. Saccharification.</li> <li>4. Fermentation process development.</li> <li>5. Saccharification reactions.</li> <li>6. Process control system and economic analysis.</li> </ol> <b>PROGRESS:</b> Results from ongoing work conducted by Natick indicated that milled newspaper digested in the presence of Trichoderma cellulase yield glucose concentrations of 2-10%. Work to upgrade glucose yields is ongoing.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input type="checkbox"/> NEGOTIATED CONTRACT <input checked="" type="checkbox"/> RESEARCH GRANT		PROJECT OFFICER <b>Charles J. Rogers, Senior Research Chemist</b> RESPONSIBLE ORGANIZATION <b>Solid &amp; Hazardous Waste Research Division</b> <b>NERL-Cincinnati / EPA</b>	
FUNDING OBLIGATED		ESTIMATED COMPLETION DATE	
100K F.Y. 75		June 17, 1975 June 1976	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77ADG	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Control Technology Development for Abating Air Emissions from Glass Melting Furnaces</b> GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center; padding: 10px;">Interim - final expected Mar. 76</div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.  Glass melting furnaces are considered a potential source of fine particulate, sulfur oxides, nitrogen oxides, and other gases which are generally considered undesirable atmospheric emissions. In 1971, the glass industry ranked ninth in total fuels purchased by manufacturing industries. Two-thirds of the energy utilized by the glass industry was consumed by the high temperature melting furnaces in which raw materials are converted into molten glass. With most high temperature operations, the thermal efficiency is low, usually less than 35 percent. The product of this work will be the development of technology which reduces air emissions and improve the energy utilization of the glass melting furnace.  The purpose of this effort is to develop control technology for the abatement of air emissions from glass melting furnaces. A secondary benefit will be to improve the thermal efficiency of the furnaces and hence to conserve energy. The ultimate goal of this program is to demonstrate the technical and economic benefits of this technology on a commercial glass melting furnace within the industry.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		1	
		PROJECT OFFICER <b>E. J. Wooldridge</b> RESPONSIBLE ORGANIZATION <b>IERL-RTP / EPA</b>	
FUNDS OBLIGATED <b>\$235 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE <b>Feb. 76 (Est.)</b>
		ESTIMATED COMPLETION DATE <b>5/76</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		77-ADG	
TITLE OF PROJECT <b>Pollution Control &amp; Heat Recovery from Primary &amp; Secondary Nonferrous Smelters</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>William Coltharp, Senior Engineer</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Radian Corporation, P.O. Box 9948, Austin, Texas 78766</b>			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. <u><b>Objective:</b></u> Investigate energy recovery applied to nonferrous smelters while simultaneously easing the control of air pollutants.  <u><b>Approach:</b></u> Recovery of heat contained in smelter flue gases is an approach potentially capable of conserving considerable quantities of fossil fuel (chiefly natural gas) in pyrometallurgical processes used for recovery of non-ferrous metals such as copper, zinc, and lead. Although such recovery of waste heat has been practiced on the limited scales in the U.S. or elsewhere (chiefly for steam generation), it is conceivable that by the application of available heat exchange devices (pebble bed or other type suitable heat exchangers) large quantities of additional waste energy can be claimed and made available for preheating air streams that are being supplied to various process units of existing smelters. Present practice of quenching hot flue gases by dilution with ambient air greatly increases a total gas volume discharged by a smelter. The recovery of waste heat and its utilization for electricity generation and for preheating process air therefore, would considerably reduce a total waste gas flow from the source. Since smelter effluent gas is always subject to purification before its discharge into the atmosphere (removal of particulate matter, sulfur oxides or other impurities), the possibility of reducing its total volume through heat exchange implies also technical and economical advantages that could be gained in addition to conservation of energy.  The proposed effort is to evaluate potential heat recovery systems and to develop preliminary designs for full scale application of the most potentially promising systems.			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
		DATE <b>Sept. 17, 1975</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural)		2	
<input type="checkbox"/> NEGOTIATED CONTRACT		PROJECT OFFICER <b>Margaret Stasikowski</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION <b>IERL-Cincinnati / EPA</b>	
FUNDS OBLIGATED <b>\$100 K</b>	F.Y. <b>75</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>UNKNOWN</b>	STARTING DATE <b>July 28, 1975</b>
		ESTIMATED COMPLETION DATE <b>April 1976</b>	

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA <b>77 BEW</b>	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Fuel Cell Studies and Development (ERDA)</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>Dr. L. R. Lawrence, Jr. ERDA/CONRT Washington, D.C. 20545 202/376-4739</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>Energy Research and Development Administration</b>			
<p><small>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</small></p> <p><b>Objectives:</b> Demonstrate small scale performance of state-of-the-art phosphoric acid fuel cells. Study the market, applications, and benefits of fuel cell systems in industry, with waste hydrogen, and as peacetime military ground power.</p> <p><b>Approach:</b> A contract has been let to test and demonstrate, in the public domain, a number of small scale phosphoric acid fuel cells. A second contract is being let through the Air Force to examine the application of fuel cell systems to Air Force ground power. A third contract will examine the present use of waste hydrogen, it's availability for fuel cell system, and possible hardware design for this application. A fourth contract will broadly examine the industrial market, application, and cost-benefit for small (40KW) phosphoric acid systems.</p> <p><b>Current Plans and/or Program:</b> The referenced contracts are presently in the process of being let.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR 	
		DATE <b>Feb-22, 1976</b>	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural)		PROJECT OFFICER	
<input checked="" type="checkbox"/> NEGOTIATED CONTRACT		<b>Dr. L. R. Lawrence, Jr. 202/376-4739</b>	
<input type="checkbox"/> RESEARCH GRANT		RESPONSIBLE ORGANIZATION	
		<b>Energy Research &amp; Development Administration</b>	
FUNDS OBLIGATED <b>\$2M</b>	F.Y. <b>1975</b>	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. <b>0</b>	STARTING DATE <b>01/01/76</b>
		ESTIMATED COMPLETION DATE <b>10/01/76</b>	

# ADVANCED SYSTEMS

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE		SSIE EPA <b>77ADI</b>	
TITLE OF PROJECT <b>Survey of Environmental Regulations &amp; the Assessment of Pollution Potential &amp; Control Technology Applications for Geothermal Resource Development</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <b>CONTRACTOR NOT YET SELECTED</b>			
NAME AND ADDRESS OF APPLICANT INSTITUTION  <b>N/A</b>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p><b>This project will provide a comprehensive description of legal and technological requirements for pollution control in the emerging geothermal resource industry. It requires a survey of existing applicable regulations for each state having identified geothermal potential. All phases of development and all media regulations are to be included to establish overall pollution control requirements. Geothermal reservoirs will be identified and described in terms of fluid characterization. Current and developmental processes for geothermal exploration, development, and utilization will be reviewed, with emphasis given to identification of waste discharges or other environmental effects which may require control. Options for pollution control will be assessed and documented, including engineering and economic feasibility of applying specific processes to achieve acceptable control of wastes or other adverse environmental effects.</b></p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATURE OF PRINCIPAL INVESTIGATOR	
DATE		DATE	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		<b>01</b>	
PROJECT OFFICER		RESPONSIBLE ORGANIZATION	
<b>Alden G. Christianson</b>		<b>IERL/CIN/ EPA</b>	
FUNDS OBLIGATED	F.Y.	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.	STARTING DATE
<b>\$122K</b>	<b>75</b>	<b>1</b>	<b>Aug. 75</b>
ESTIMATED COMPLETION DATE			<b>Aug. 76</b>
237			



U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
<b>NOTICE OF RESEARCH PROJECT</b>		PROJECT NO. (Do not use this space) SSIE EPA 77 ADT	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE			
TITLE OF PROJECT <b>Geothermal Systems/Environmental Assessment of Extraction, Conversion, and Waste Disposal</b>			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.  <div style="text-align: center;"> <p>Donald B. Gilmore - Principal investigator, Monitoring Systems Design and Analysis Staff</p> <p>(702) 736-2969</p> </div>			
NAME AND ADDRESS OF APPLICANT INSTITUTION <div style="text-align: center;"> <p>U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring &amp; Support Laboratory, P.O.Box 15027, Las Vegas, Nevada, 89114</p> </div>			
<p>SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress (200 words or less. Omit confidential data). In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged with government and private agencies supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.</p> <p><b>Objective:</b> A guideline document for the multi-media monitoring strategy around any geothermal resource development.</p> <p><b>Approach:</b> Development and validation of a monitoring strategy for monitoring the effects of geothermal effluents on plants, animals and groundwater.</p> <p>Fifty percent of this work will be performed by contract (task 01) for a state-of-the-art and background data study covering groundwater pollution of the East Mesa area of the Imperial Valley, design and implementation of a monitoring strategy, and the collection and analysis of data.</p> <p>The balance of the work will be performed in-house (task 02 thru 05) and will include a plant and animal uptake study in the Salton Sea area as well as element and chemical compound identification of geothermal effluents.</p> <p>There will be developed a set of referenced sampling methods.</p> <p><b>Current Plans:</b></p> <p>Collection of baseline data and identification of pollutants and development of monitoring strategies. The areas to be studied are the Salton Sea for plant and small animal uptake and the East Mesa area for groundwater pollution and subsidence. The monitoring strategies will be implemented and adjusted as dictated by the data retrieved.</p>			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)  NA		SIGNATURE OF PRINCIPAL INVESTIGATOR  <i>Donald B. Gilmore</i>	
		DATE  8/15/75	
FOR OFFICE USE ONLY			
SUPPORT METHOD (Check one)		TASK NO.	
<input checked="" type="checkbox"/> AGENCY STAFF (Intramural) <input checked="" type="checkbox"/> NEGOTIATED CONTRACT <input type="checkbox"/> RESEARCH GRANT		01 thru 05  PROJECT OFFICER <b>George B. Morgan - (702) 736-2969 x265</b> RESPONSIBLE ORGANIZATION <b>EPA Environmental Monitoring &amp; Support Laboratory/MSRD Division</b>	
FUNDS OBLIGATED  \$250K	F.Y.  75	NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.  4	STARTING DATE 10/75  ESTIMATED COMPLETION DATE 10/80

<b>TECHNICAL REPORT DATA</b> <i>(Please read Instructions on the reverse before completing)</i>		
1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE  <b>Fiscal Year 1975/Control Technology Research Program Abstracts</b>		5. REPORT DATE <b>October 1976</b> 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)  <b>K. Dixon and H. Holte</b>		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS  <b>VITRO Laboratories 1400 Georgia Avenue Silver Spring, MD 20910</b>		10. PROGRAM ELEMENT NO. <b>626</b> 11. CONTRACT/GRANT NO.  <b>68-01-0612</b>
12. SPONSORING AGENCY NAME AND ADDRESS  <b>Nina Rowe and Richard Laska Office of Energy, Minerals, &amp; Industry Office of Research &amp; Development Washington, DC 20460</b>		13. TYPE OF REPORT AND PERIOD COVERED  14. SPONSORING AGENCY CODE
15. SUPPLEMENTARY NOTES		
16. ABSTRACT  <p>This report includes SSIE(Smithsonian Science Information) Abstracts pertaining to the FY 1975 Interagency Energy/Environment Research, Development and Demonstration Program being coordinated and managed by EPA's Office of Energy, Minerals, and Industry. The Abstracts are organized by major energy source control technology. This volume includes research being accomplished by EPA and its laboratories as well as a number of the participating agencies of the Federal Government.</p>		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
ABSTRACTS ENERGY ENVIRONMENTS ENVIRONMENTAL ENGINEERING	ENERGY/ENVIRONMENT ENVIRONMENTAL RESEARCH  EPA PROGRAMS	06F 08H 10A 13B
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