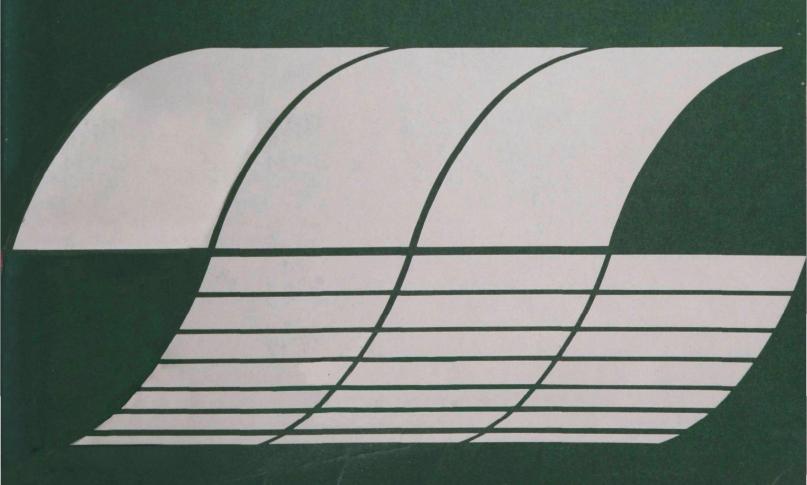
November 1976

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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TABLE 1

ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

FUNDING! THOUSANDS!

AGENCY : ENVIRONMENTAL PROTECTION AGENCY

	KING CATEGORY	ALL	CCAL	QIL/GAS	OIL SHALE	NUCLEAR	GEOTHERM	SOL AR	WASTE-FUEL	HYDROEL	CONSERVN	MULTI-FUEL
	CONTROL TECHNOLOGY											
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TABLE 2 ENVIRONMENTAL PROTECTION AGENCY

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TABLE 3

ENVIRONMENTAL PROTECTION AGENCY
ENERGY BUDGET FY 1975

AGENCY : FEDERAL ENERGY ADMINISTRATION FUNDING (THOUSANDS) KING CATEGURY ALL OIL/GAS OIL SHALF NUCLEAR GEOTHERM SOLAR WASTE-FUEL HYDROEL CONSERVN MULTI-FUEL CONTROL TECHNOLOGY 6XX 6 A O 6 A I 6A2 6A3 6B0 6C0 6C1 6.C3 6C4 6D0 602 6E () 6F () 660 6113 6HI 6H2 6H3 6H4 610 611 612

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TABLE 4

ENVIRONMENTAL PROTECTION AGENCY
ENERGY BUDGET FY 1975

AGENCY : TENNESSEE VALLEY AUTHORITY FUNDING(THOUSANDS) KING CATEGURY DIL/GAS DIL SHÅLE NUCLEAR GEDTHERM SOLAR WASTE-FUEL HYDROEL CUNSERVN MULTI-FUEL ALL COAL CONTROL TECHNOLOGY 8523 4934 1333 0 1936 350 6XX 640 6Al 642 6A3 680 600 410 6C3 2331 1435 9 . 604 5D.) 601 6D2 680 6FQ 6F1 6F2 4667 2980 660 1625 6H0 6H1 642 6H3 610 611 0 612 610

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TABLE 5

ENVIRONMENTAL PROTECTION AGENCY
ENERGY BUDGET FY 1975

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TABLE 6

ENVIRONMENTAL PROTECTION AGENCY
ENERGY BUDGET FY 1975

AGENCY : DEPARTMENT OF THE INTERIOR FUNDING (THOUSANDS)

KING CATEGORY	ALL	CUAL	UIL/GAS	DIL SHALE	NUCLEAR	GEOTHERM	SOL AR	WASTE-FUEL	HYDROEL	CONSERVA	MULTI-FU
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TABLE 7

ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : APPALACHIAN REGIONAL COMMISSION FUNDING(THOUSANDS) KING CATEGORY COAL DIL/GAS DIL SHALE NUCLEAR GEOTHERM SOLAR WASTE-FUEL HYDROEL CONSERVN MULTI-FUEL CONTROL TECHNOLOGY 6XX 300 300 640 641 642 61.5 600 601 603 604 604 601 61)2 6E 0 6F0 6F1 6G D 640 641 6H2 5H4 610 612

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TABLE 8

ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

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KING CATEGURY CONTROL TECHNOLOGY	ALL	CUAL	O1L/GAS	OIL S	HALE	NUC LEAR	SEOTHERM	SOLAR	WASTE-FUEL	HYDROEL	CONSERVA	MULT I-FUEL
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TABLE 9

ENVIRONMENTAL PROTECTION AGENCY

ENERGY BUDGET FY 1975

AGENCY : TOTAL FY75 ENERGY FUNDS FUNDING (THOUSANDS) * KING CATEGORY CONFROL TECHNOLOGY DILIGAS OIL SHALE NUCLEAR GEOTHERM SOLAR WASTE-FUEL HYDROEL CONSERVA MULTI-FUEL ALL COAL 6XX 5307 6A3 6A3 6A3 6C0 6C1 6C2 6C3 6C4 6D0 6D1 6D2 6FU o 1691 130 104 2 3 0 3 0 0 785 3700 37J0 325 20 375 6F 1 6G) 6HQ 6HI 6H2 6H3

L

EXHIBIT A

RESEARCH CATEGORY

	TECHNOLOGY
6XX	SUMMATION OF CONTROL TECHNOLOGY
	ENERGY RESOURCE EXTRACTION
	COAL/OIL SHALE
	OFF-SHORE OIL/GAS
	ON-SHORE OIL/GAS
	PHYSICAL/CHEMICAL COAL CLEANING
	FLUE CAS CLEANING
	SOx CONTROL
	NOx CONTROL
	PARTICULATES
	HAZARDOUS MATERIALS
	DIRECT COMBUSTION
6D1	FLUIDIZED BED COMBUSTION
	CAFB
6E0	SYNTHETIC_FUELS
6FO	NUCLEAR WASTE CONTROL
6F1	HINING/MILLING
6F2	WASTE STORACE/DISPOSAL
6G0	THERMAL CONTROL
6H0	IMPROVED EFFICIENCY
6R1	FUEL CELLS
682	ADVANCED POWER CYCLES
6H3	WASTES AS FUEL
6H4	INDUSTRIAL PROCESS CHANGE
610	ADVANCED SYSTEMS
611	SOLAR
612	GEOTHERMAL
6J 0	ADVANCED AUTOMOTIVE POWER SYSTEMS

×

ENERGY RESOURCE EXTRACTION

U.S. ENVIRONMENTAL PROTECTI	ON AGENCY	•	on Apponent No. 155-10081
			(not use this space)
NOTICE OF RESEARCH P	ROJECT	SSIE.	
PREPARED FOR THE SMITHSONIAN SCIENCE IN	FORMATION EXCHANGE	77-AF	ı A
TITLE OF PROJECT			······································
"Environmental Impact of Steep S GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES O PROFESSIONAL PERSONNEL ENGAGED IN THE PROJE	DF PRINCIPAL INVESTIGATOR	S OR PROJECT DIRECTO	ORS AND ALL OTHER
Ben E. Lusk, President			
West Virginia Surface Mining and			
Reclamation Association			·
NAME AND ADDRESS OF APPLICANT INSTITUTION			
West Virginia Surface Mining and	Reclamation Associ	ation	
1624 Kanawha Boulevard, East			
Charleston, West Virginia 25311			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Ap In the Smithsonian Science Information Exchange, summ porting research and are forwarded to investigators who req	aries of work in progress are ex-	changed with government a	and private agencies sup-
			0 43-
The primary objective of the pro			
modified box-cut method of surfa	ce mining in reduci	ng the impact of	i the surrounding
envilonment.			
The proposed work will be conduct West Virginia, and will consist baseline parameters; (2) Document toring of environmental impacts data on environmental impacts or recovery of mined area; (6) Compaite; and (7) Preparation of pro-	of the following ta station of mining op during mining opera f other steep slope parative analyses of	sks: (1) Determentations (procedutions; (4) Acquirations; (4) Acquirations activities warious sites	mine environmental dures); (3) Moni- ire historical es; (5) Document
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The proposed schedule is 24 mont	ths.		
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IDENTIFY PROFESSIONAL SCHOOL IIIVOLVED (Medical dental, etc.)	SIGNATURE OF PRINCIPA	AL INVESTIGATOR	DATE
	Prepared by S. J	Jackson Hubbard	3/6/75
	FOR OFFICE USE ONLY	EPA	
SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFIC		
AGENCY STAFF (Intramual)	S. Jack	son Hubbard	
· NEGOTIATED CONTRACT	RESPONSIBLE O)-684-4417

\$70,000

X RESEARCH GRANT

FUNDS OBLIGATED F.Y.

75

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

1

HERC-Cincinnati, Ohio 45268

STARTING DATE

| STARTING DATE | ESTIMATED COMPLETION DATE

5/1/75

4/30/77

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Appeared OMB No. 178-Project PROJECT NO. (Da not use this speed)

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77-AAB

SSIE

TITLE OF PAGEST "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 OF 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

Institute of Applied Research
Montana State University
Bozeman, Montana 59715

SUMMARY OF PROPOSED NOTE: - (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 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.

The proposed work is a key effort in the EPA program to assess the surface and ground water problems associated with western coal.

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.

IDENTIFY PROFESSION dental, etc.)	ONAL SC	HOOL INV	OLVED (Medical,	SIGNATURE OF PRINCIPAL INVESTIGATOR DATE					
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Form Approved
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NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77-AAB

TITLE OF PROJECT

Surface and Subsurface Water Quality Hydrology in Mine Spoils give Names, Departments, and Official Titles of Principal Investigators or Project Directors and all other Professional Personnel engaged in the Project.

David B. McWhorter, Agricultural Engineering Department

Rodney K. Skogerboe, Chemistry Department

NAME AND ADDRESS OF APPLICANT INSTITUTION Colorado State University Fort Collins, Colorado 80521

SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Pians 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 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.

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 spolils, topsoiling, surface manipulation to increase or decrease infiltration, and the effect of revegetation on pollution potential.

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EPA Form 5760-1 (7-72)

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77 -AAB "Effects of Surface Configuration in Water Pollution Control on Semi-arid Mined Lands" GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OF PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Richard L. Hodder, Project Leader I. B. Jensen, Principal Investigator KAME 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 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, SIGNATURE OF PRINCIPAL INVESTIGATOR DATE College of Agriculture I. B. Jensen April 17, 1975

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Robert Bailey, Director		·		
Northern Cheyenne Research Project		۶ .		
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NAME AND ADDRESS OF APPLICANT INSTITUTION				
Northern Cheyenne Tribal Council				
Lame Deer, Montana 59043				
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U.S. ENVIRONMENT PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77-AAB TITLE OF PROJECT Evaluation of the Environmental Impacts of Western Surface Coal Mining GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. L. Daniel Maxim, Vice President, Mathtech Division Frank Cook, Consultant, Mathtech Division Burton Becker, Vice President, Hittman Associates, Inc. Thomas Mills, Project Director, Hittman Associates, Inc. NAME AND ADDRESS OF APPLICANT INSTITUTION P.O. Box 2392, Princeton, New Jersey 08540 Mathematica, Inc. 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 a.) Assessment of the environmental damages that result from surface coal mining in the Western U.S. b.) Identification of new production and reclamation technologies whose use would reduce the magnitudes of those environmental damages. 2. Approach 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. 3. Progress Project just initiated.

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S. Jackson Hubbard (513)-684-4417
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U.S. ENVIRONMENTAL PROTECTION AGENCY

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NOTICE OF RESEARCH PROJECT

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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77-AAC

TITLE OF PROJECT

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.

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.

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."

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Mining Branch - Cincinnati

ESTIMATED COMPLETION DATE 5-10-75

STARTING DATE

6-10-75

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Manual of Practice for P	remining Plann	ing Eastern Surf	ace Coal Minio	ıg
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R. V. Ramani	- 2	T		
Associate Professor of M	ining Engineer	L. W. Saper		udii ee d
Department of Mineral En	gineering	•	roressor or Mi of Mineral Eng	ning Engineering
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porting research and are forwarded to Inves	tigators who request suc	h information. Your summe	ry is to be used for the	ese purposes.
W. # 1		i .		
The manual of pract	ice will set o	ut the rationale	in pre-mining	site evaluation
so that mining and recla	mation will be	done in a manne	r so as to not	only comply with
existing and proposed st	ate and federa	l mining program	s but ensure m	inimal environ-
mental damages. The sit	e evaluation w	ill include the	evaluation of	the soil and rock
properties, surface and	ground water r	esources, physic	al and cultura	I features, and
methods of mining and re	clamation. It	will consider the	ne geological	and hydrological
setting prior to mining	as the basic i	nputs to the pre-	-mining planni	ng. The manual
of practice will provide	guidelines and	d means of assess	sing alternati	ves in the areas
of water management, lan	d use planning	, and surface min	ne engineering	, and will be
mostly based on informat	ion gained from	m literature rev	lew and critic	al evaluation of
methods as reported in t	he literature .	and applied in t	ae field. The	M.O.P. shall
recommend methods, techn	iques and alte	rnatives for sele	ecting and des	igning mining
systems to achieve soil	handling and s	torage, and over	ourden handlin	g, segregation
and disposal. It will b	e presented in	an orderly and	concise manner	. Liberal use
of charts, maps, graphs,	diagrams and	photographs will	be made to su	bstantiate the
description.		y:	•	
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The Manual of Pract control personnel in dev	cloping ovel	iii be designed i	o assist mine	operators and
plans that will be least	detrimental to	the environment	ing mining and	reclamation
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STARTING DATE

July 1, 1975

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June 30, 1977

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Dr.	David B. McWhorter, Assistant Profes Department of Ag		ineering	
NAME AND	ADDRESS OF APPLICANT INSTITUTION			
	orado State University t Collins, CO 80523			
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2	To summarize these data toward the	identification	of deficiences	" 5•
3.	To develop and verify procedures for quality.	or quantitative	assessment of	water
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Eugene F. Harris (513)-684-4417

Extraction Technology Branch, TERL-Cincinna

7/15/75

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POTICE OF RESEARCH PROJECT

PRECAMED FOR THE SACTISCHART SCIENCE INFORMATION EXCHANGE

Vegetation Stabilization of Spent Oil Shales

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

HAME AND ADDRESS OF APPLICANT INSTITUTION

Colorado State University Fort Collins, Colorado 80521

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

Objective. 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.

Approach. The study is being carried out on two different spent oil shales. "Scil" 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.

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.

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U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE EPA EPA EPA-IAG-D5-E756-EE

TITLE OF PROJECT

Plant materials studies to improve technologies for the reclamation of surface mined lands 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)

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.

- 1. To assemble, analyze, summarize and prepare a report on plant materials activites 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.
- 2. To accelerate plant materials work with special emphasis in the Western Mining Region (arid and semi-arid) to:
 - Determine plants best suited for mine spoil reclamation under wide range of site conditions.
 - b. Develop techniques for the successful establishment and survival of plants for erosion control and mireland reclamation.
 - c. Determine the modification of equipment for seed collection and processing and for planting disturbed lands.
 - d. Propagate and provide for the commercial increase and dissemination of seed and other plant materials for mine spoil reclamation.
- 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.

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	RESEARCH GRANT					USDA-Soil Conservation Service			
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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.

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PROJECT NO. (Do not use this space)

SSIE EPA

NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77-AAE

SITLE OF PROJECT

Evaluation of Reverse Osmosis Processes Utilized for Treatment of Acid Mine Drainage
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OF PROJECT DIRECTORS AND ALL OTHER
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

G. Lansing Blackshaw, Dept. of Chemical Engineering, Professor & Principal Investigator
Alfred W. Pappano, Dept. of Chemical Engineering, Assistant Professor and
Co-Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION
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.

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.

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 neutrolosis 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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					SIGNATURE OF PRINC		DATE			
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EPA Form 5769-1 (7-72)

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	77-AAF

TITLE OF PROJECT

Study of Pollution Control Technology for Offshore Oil Drilling and Production Platforms GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER

Principal Investigator: Dr. Steven M. Fruh

Group Head. Environmental Systems

Exxon Research and Engineering Company

NAME AND ADDRESS OF APPLICANT INSTITUTION

PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Exxon Research and Engineering Company

P. 0. Box 8

Linden, New Jersey 07036

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 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 - decluding 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.

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NOTICE OF RESEARCH PROJ PREPARED FOR THE SMITHSONIAN SCIENCE INFORM TITLE OF PROJECT Compilation of Cold-Climate Oil-Spill GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF P PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Principal Investigator: Dr. J. D. McK Assistant Pro Institute of	ECT MATION EXCHANGE Research and Techno RINCIPAL INVESTIGATORS OR Mendrick	ONB N PROJECT NO. (Do n SSIE EPA 7 logy Pertainin PROJECT DIRECTOR	7-AAG g to Alaskan Shore
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U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
NOTICE OF RESEARCH PROJECT	RROJECT NO. (Do not use this space) SSIE
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 Illtimately 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 supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

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.

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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE	
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TITLE OF PROJECT Evaluation Procedures-Eastern Unde	of the Long	-term E	Invironmental	Effectiveness	of close-down
GIVE NAMES, DEPARTMENTS, AND OFFI PROFESSIONAL PERSONNEL ENGAGED	ICTAL TITLES OF P	RINCIPAL	. INVESTIGATORS OF	R PROJECT DIRECTO	RS AND ALL OTHER
Dr. R. W. Stinglin					
NAME AND ADDRESS OF APPLICANT IN	STITUTION				
HRB Singer, Inc.; P.O.	Box 60; State	e Colle	ge, PA 16801		
SUMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information porting research and are forwarded to inves	Exchange, summarie	s of work i	n progress are exchan	ged with government as	nd private agencies sup-
techniques currently in drainage from the mines the characteristics of underground mines is an	, mine method the seam mine	is invo	lved, length		
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\$144 K EPA Form 5760-1 (7-72)

FUNDS OBLIGATED F.Y.

NEGOTIATED CONTRACT RESEARCH GRANT

REPLACES PHS FORM 166 AND SI-SIE 764 WHICH MAY NOT BE USED.

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

RESPONSIBLE ORGANIZATION EPA
Extraction Technology Br., IERL-Cincinnati

STARTING DATE

ESTIMATED COMPLETENTE

U.S. ENVIRONMEN 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	FPA 77-ACF

TITLE OF PROJECT

Evaluation of the Long Term Environmental Effectiveness of Close Down Procedures-

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

Eastern Underground Coal Mines.

Dr. Ronald W. Stingelin, Principal Geologist, Department of Environmental and Social Analysis (Principal Investigator)

NAME AND ADDRESS OF APPLICANT INSTITUTION

HRB-Singer, Inc., P.O. Box 60 Science Park, 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 supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

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.

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U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT SSIF PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE EPA-IAG-D5-E681-AF

ENVIRONMENTAL CONTROL TECHNOLOGY SURVEY ON SELECTED U.S. STRIP MINING SITES

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

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 - 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.

Approach - 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.

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U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA-IAG-D5-E756-EE

TITLE OF PROJECT

Plant materials studies to improve technologies for the reclamtion of surface mined lands 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. Washingto, 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.

- 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.
- 2. To accelerate plant materials work with special emphasis in the Western Mining Region (arid and semi-arid) to:
 - a. Determine plants best suited for mine spoil reclamation under wide range of site conditions.
 - b. Develop techniques for the successful establishment and survival of plants for erosion control and mine land reclamation.
 - Determine the modification of equipment for seed collection and processing a d for planting disturbed lands.
 - d. Propagate and provide for the commercial increase and dissemination of seed and other plant materials for mine spoil reclamation.
- 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.

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	\$200 K	1975					July 1, 1975	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.

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

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NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

IAG-D5-E764-EF

TITLE OF PROJECT Technologies for controlling adverse effects of mining on forest, range, and related freshwater ecosystems.

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. 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 & Independence Ave SE, Washington, D. C. 20250

U.S. Department of Agriculture

12th and 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.

- 1. Develop guidelines and criteria for overburden drilling, analysis, and placement as related to growth supporting media.
- 2. Prepare technical handbook on revegetation methods for mined lands in Eastern U.S., including recommendations for new research.
- 3. Develop guidelines and criteria for the use of non-mine wastes as soil amendments on coal and oil shale spoils.
- 4. Develop recommendations, guidelines, and criteria, based on new research, for revegetation following coal and oil shale mining.

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TITLE OF PROJECT				
Revegetation and rec	lamation of land a	reas disturbed	by mining	
GIVE NAMES, DEPARTMENTS, PROFESSIONAL PERSONNEL E	AND DEFICIAL TITLES OF F INGAGED IN THE PROJECT.	'RINCIPAL INVESTIGA	TORS OR PROJECT DIRECTO	RS AND ALL OTHER
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Washington, D.C.	· · · · · · · · · · · · · · · · · · ·		<u> </u>	
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of strip mine lands.	Approach - Empha	sis will be gi	ven to the effect of	of various waste
materials on water o	luality, reclamatio	n efficiency,	and plant growth ar	nd quality.
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To develop method	ds for control of	instability on	mined lands. Appr	oach - Studies
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practices to allevia	ite the instability	•	1	
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and coal mining. Ap				
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intensive forage pro	duction.			`
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emphasis will be pla	iced on <u>Rhizobium</u> s	pecies and the	growth and nitroge	n fixation
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1975

June 1975

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

PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE TITLE OF PROJECT Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE EPA EPA—IAG—D5—E681—EJ

TRACE ELEMENT CHARACTERIZATION AND REMOVAL/RECOVERY FROM RAW COAL AND COAL PROCESSING WASTES GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

LASL PROJECT DIRECTOR: R. D. Baker, CMB Division Leader PRINCIPAL INVESTIGATOR: E. M. Wewerka, Staff Member

NAME AND ADDRESS OF APPLICANT INSTITUTION

LOS ALAMOS SCIENTIFIC LABORATORY
UNIVERSITY OF CALIFORNIA, LOS ALAMOS, NM 87545

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 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.

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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	IAG D5-E762-EP thru ES
TITLE OF PROJECT Technology for Reclamation and Use of Mine	Spoils
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	OR PROJECT DIRECTORS AND ALL OTHER
See Attached List	
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NAME AND ADDRESS OF APPLICANT INSTITUTION	
Cooperative State Research Service US Department of Agriculture, Washington, D	. c.
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Pr In the Smithsonian Science Information Exchange, summaries of work in progress are excha porting research and are forwarded to investigators who request such information. Your summa	nged with government and private agencies sup-
 To develop systems of classification of minespoils post-mining redeposition, stabilization, and revegetati region. 	and to develop plans for on with trees in Eastern
To work out systems of deposition of overburden str mining including use of topsoil and soil amendments at	
 To improve diagnostic tests for potential acidity i devise reclamation methods and use of horticultural cro 	
4. To work out soil and water management including tem revegetation of mined lands in arid and semi-arid regio	
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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) See Attached Sheet			SIGNATURE OF PRINCIPAL INVESTIGATOR				are Aug. 15, 1975		
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(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.)

North Central Region (0.)

Southern Region (Va., Ky)

Western Region (Ariz. N.M., Utah)

W. I. Thomas, Associate Director Pennsylvania Agricultural Exp. Sta.

S. R. Aldrich, Assistant Director Illinois Agricultural Exp. Sta.

C. O. Little, Associate Director Kentucky, Agricultural Exp. Sta.

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

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EPA Form 5760-1 (7-72)

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May 76 (est REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

6/77

. 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	FPA 77AAK

TITLE OF PROJECT

Evaluation of the Battelle HCP Coal Desulfurization Process

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

E. Stambough - Principal Investigator

NAME AND ADDRESS OF APPLICANT INSTITUTION

Battelle Columbus Laboratory 505 King Avenue

Columbus, 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.

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.

Battelle will achieve the objective of this research program by

- Conducting combustion studies on hydrothermally treated coals and the corresponding raw coals
- Characterizing hydrothermally treated coals and the raw coals and selected spent leachants
- Evaluating the environmental impact of converting conventional boilers to hydrothermally treated coals as the source of fuel
- Assessing the interchangeability of hydrothermally treated coals in utility and industrial boilers
- Evaluating the potential of producing terephthalic acid from solubilized coal.

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	IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)				SIGNATL	SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE	
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				FC	ROFFICE	USE ONLY				
	SUPPORT METHOD (Check one)			TASK NO. PROJECT C		PROJECT OF	PROJECT OFFICER			
	AGENCY STAFF	(Intramui	al)]	L. Lo		L. Lorenzi, Jr.			
х	NEGOTIATED C	ONTRAC	T .	4		RESPONSIBLE ORGANIZATION				
	RESEARCH GRA	ŊT]		IERL-RTP, EACD, FPB /EPA				
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EPA Form 5760-1 (7-72)

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

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						3 No. 158-R0081
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PREPARED FO	OR THE SMITHSONI	AN SCIENCE INFO	RMATION EXCHANG	1	77AAL-	
TITLE OF PROJECT						
Coal Clean: GIVE NAMES, DEPAR PROFESSIONAL PERS	TMENTS, AND OFF	ICIAL TITLES OF	PRINCIPAL INVEST	IGATORS OR PR	OJECT DIRECT	ORS AND ALL OTHER
	Iı	nterim - f	inal expect	ted Mar.	76	
NAME AND ADDRESS	OF APPLICANT IN	STITUTION				WARRAN - 27
		-				
	Science Information	Exchange, summari	es of work in progres	s are exchanged	vith government a	ess. Omit confidential data). and private agencies sup- ese purposes.
tion of ensource. Properties when needed to for pollut. Work to be ment rhroucapability particle coin dewater needs for which resure.	vironmenta hysical co- tter in co- burned. accelerate ion contro performed gh surveys of commerco al; (2) de ing fine co- the develop the from fine m process	lly sound al cleanin al and rem The purpos physical . under thi and tests cial equipetermine to al from soment of and esign studesign student.	technologies g can be us ove element e of this e coal cleans s effort wo of cost an ment in res he performs ulfur clean ir and wate paration as	es which sed to re ts which effort is ing as a ill inclund performoving py ance of coing circer pollut nd dewate termine t	use coal duce the form dan to deve cost-efform dan to deve cost-efform de: (1) mance daritic su ommercial uits; (3 ion conting ope he costs	lfur from fine l equipment) evaluate rol technology rations; and of using coal
IDENTIFY PROFESSION dental, etc.) SUPPORT METHO	D (Check one)			.Y T OFFICER		DATE
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X NEGOTIATED CO		1		Cinicinna		lie
RESEARCH GRAI	F.Y. NO. OF F	UTURE YEARS TE	ENTATIVELY	STARTING	·	ESTIMATED COMPLETION

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Feb. 76 (Est.)

ESTIMATED COMPLETION

12/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved
	L	OMB No. 158-R0081
NOTICE OF RESEARCH PROJECT		ROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT		PA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION	EXCHANGE	77AAL
TITLE OF PROJECT Process Design Manual for Coal Preparation	n Dianta	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIP PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.		OJECT DIRECTORS AND ALL OTHER
D. Nunenkamp - Principal Investigator		
NAME AND ADDRESS OF APPLICANT INSTITUTION		
J.J. Davis Associates		
7900 Westpark Drive, Suite 915		
McLean, Virginia SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) C	and Plans and /or Decree	(200 mode or loss Omit confidential data)
In the Smithsonian Science Information Exchange, summaries of work porting research and are forwarded to investigators who request such information to the second s	in progress are exchanged	with government and private agencies sup-
This contract will provide in cond	rise form the hes	t of existing technology in
physical coal cleaning operations to user		
will detail potential environmental prob		
and local agencies. Specific processes	itilized for phys	ical 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 implement	acton in design o	I new creating factificies.
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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNAT	URE OF PRINCIPAL INVE	STIGATOR DATE
dental, etc.)		5.7.5
N.A.	-	17 Sept. 1975
FOR OFFIC	E USE ONLY	
SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFICER	
AGENCY STAFF (Intramutal)	M.J. Stutsmar	
X NEGOTIATED CONTRACT 1B	RESPONSIBLE ORGANIZ	
RESEARCH GRANT	IERL-RTP, EAC	
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TENTATIVE	ELY STARTING	DATE ESTIMATED COMPLETION

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

28 June 1974

estimated completion date
28 June 1975

. U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081	
	PROJECT NO. (Do not use this space)	
NOTICE OF RESEARCH PROJECT	SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAL	
TITLE OF PROJECT		
Comparison of Fossil- and Wood-Derived Fuels	3	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. E.H. Hall - Principal Investigator		
NAME AND ADDRESS OF APPLICANT INSTITUTION		
Battelle Columbus Laboratories		
505 King Avenue		
Columbus, Ohio		
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or In the Smithsonian Science Information Exchange, summaries of work in progress are exporting research and are forwarded to investigators who request such information. Your sur	schanged with government and private agencies su	
The objectives of the study were as follows:		
 To evaluate wood as a fuel for a 50 MW pow Vermont as compared with alternative fuels 		

- low-sulfur coal, physically cleaned coal, high-sulfur coal burned with stack gas scrubbing, and low-sulfur fuel oil.
- To make a cursory study of the applicability of the concept to other areas of the country and to other sized power plants.
- 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 pollutioncontrol modifications.
- 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.

	NTIFY PROFESSI tal, etc.)	ONAL SC	HOOL INV	OLVED (Medical,	SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE	
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	AGENCY STAFF	(Intramu	rel)	7	J. Kilgroe				
x	NEGOTIATED C	ONTRAC	Т				E ORGANIZATION		
RESEARCH GRANT					IERL-RTP, EACD, FPB /			FPB / E	PA
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	\$75,000	75		1			3 July	1975	Oct. 1975

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TITLE OF PROJECT				
Bench-Scale Study of GIVE NAMES, DEPARTMENTS, AND OF PROFESSIONAL PERSONNEL ENGAGED	the Meyers FICIAL TITLES OF P D IN THE PROJECT.	Process for RINCIPAL INVESTIGAT	Coal Desulfuri	.zation ORS AND ALL OTHER
	Interim -	final expec	ted May 75	
NAME AND ADDRESS OF APPLICANT II	NSTITUTION			
SUMMARY OF PROPOSED WORK - (1) of In the Smithsonian Science Information porting research and are forwarded to investigate the management of the Meyers Process of the moving pollutant - for the Meyers Process of the mical feasibility up studies for bench the applicability of coals. Design of a dependent economic estechnically and economically and economically and economically that integrated quired and (2) that the fundamental knows system. The purpose of this velopment work on the additional work will technical and economical and will provide addengineering evaluations.	estigators who request for coal destigators who recall proceed the Meyers pilot plant additional redge and uproject is the Meyers Project is th	s of work in progress are such information. Your sulfurization stituents from the supported sess of this sess development of the Meyers es studies hable. These studies hable. These studies hable scale anderstanding to provide a socess at a blentified progress in the service of the such scale and the such scale and the such scale are such such scale are such such scale are such such such scale are such such scale are such such scale are such such scale are such such such such such such such such	exchanged with government a summary is to be used for the is one method on coal prior to by EPA for a stinitial project tent and then to hnology to a valed under contrated and the studies have a shown that studies have a for the technol study is required to the desulful dditional experiench—scale level excess problem and process data nearly alternative process data nearly and acceptants.	for chemically combustion. Independent of the combustion of the c
dental, etc.)	!			
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SUPPORT METHOD (Check one)	TASK NO.	R OFFICE USE ONLY PROJECT OF		
AGENCY STAFF (Intramutal)		Lloyd	Lorenzi, Jr.	
X NEGOTIATED CONTRACT	5	RESPONSIBL	E ORGANIZATION	1
RESEARCH GRANT	<u> </u>	IERL-I	RTP / EPA	ESTIMATED COURT STILL
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	NUTICE OF	RESEARCH FROS	ECI	SSIE EPA					
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TIT	Characterization of	Cool and Coal	Docidue						
GIV	Characterization of VENAMES, DEPARTMENTS, AND CO	OFFICIAL TITLES OF P	RINCIPAL INVESTIGAT	ORS OR PROJECT DIRECT	ORS AND ALL OTHER				
	GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.								
	W.J. Rhodes, Project Officer								
NI A A	ME AND ADDRESS OF APPLICANT	TINSTITUTION							
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	A new contrac	at 111 1aak st	notential noll	utants that are o	roanically				
	combined in the coal								
	will be made.	T come descension							
				s to determine th					
	chemical nature of t								
	production to its po	ollucants, (J)	Conduct corumn	leaching tests on	Coar restudes.				
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	tal, etc.)	NVOLVED (Medical,		IPAL INVESTIGATOR					
		NVOLVED (Medical,		IPAL INVESTIGATOR	DATE 17 Sept. 1975				
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NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

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PREPARED FOR TH				XCHANGE	EPA	
					77AAL	Complete Charles
Removal of Pyriti		-	and Ev	valuation	of a Pilot Plant	for the Chemical
GIVE NAMES, DEPARTMEN	ITS, AND OFFIC	CIAL TITLES OF PE	RINCIPAL	INVESTIGAT	ORS OR PROJECT DIRECT	ORS AND ALL OTHER
PROFESSIONAL PERSONNI	EL ENGAGED II	THE PROJECT.				
NAME AND ADDESS :	Day I Contact				· · · · · · · · · · · · · · · · · · ·	
NAME AND ADDRESS OF A						
TRW, Inc., TRW Sy 1 Space Park	arems GEO	пħ				
Redondo Beach, Ca	alifornia	90278				
SUMMARY OF PROPOSED	WORK - (1) Obj	ectives, (2) Approac				ess. Omit confidential data).
	nce Information F	Exchange, summaries	s of work is	n progress are	exchanged with government	and private agencies sup-
		Carra and and and			,	, .
EPA is actively s	supporting	development	work	on a chem	nical extraction	technique for
the removal of py	yritic sul	fur from coa	1 by u	se of the	Meyers Process.	This de-
velopment has pro	ogressed t	o the stage	of sca	le-up to	pilot plant size	. Pilot plant
construction and	operation	is required	and w	ill be pı	covided from this	effort. The
principal outputs	s from thi	s study will	be de	finitions	of the integrat	ed, operational
feasibility of th					ecnnology advanc	ement to
demonstration/com	mmerciai s	care with pe	gener	ateu.		
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IDENTIFY PROFESSIONAL	L SCHOOL INVO	N VED (Modical	SIGNATII	RE OF PRINC	IPAL INVESTIGATOR	DATE
dental, etc.)	L SCHOOL INVO	DE VED (medical)				
			Mr	. Robert	Myers	
		FO	ROFFICE	USE ONLY		
SUPPORT METHOD (Check one)	TASK NO.		PROJECT OF	FICER	. —
AGENCY STAFF (Int	ramural)				Lorenzi E ORGANIZATION	
X NEGOTIATED CONT	RACT	7		EPA	CONGANIZATION	
RESEARCH GRANT			NT 4 7 1 1 1		STARTING DATE	ESTIMATED COMPLETION
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\$850.000	75				6/17/75	11/17/76

\$850,000

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	PREPARED F	OR THE S	MITHSONI	AN SCIENCE INFORM	NOITAN	EXCHANG E		EPA 77 /	AAL
D	LE OF PROJECT Development	Progra	am for	Treatment of	Coal	to Produc	ce Low	-Sulfur, Sol	id Fossil Fuel
GIV PR	E NAMES, DEPAR OFESSIONAL PER D.K. Fler	:TMENTS, SONNEL 8 nina	and off engaged Proiec	icial titles of PR in the PROJECT. t Manager, A:	ssista	int Direc	tors or F	ocess Evalu	ors and all other ation
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NA	ME AND ADDRESS Institute	of APPL	Techr	STITUTION Nology					
	3424 Sout			51					
	Chicago,	Illino	is 60	616					
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S	ulfur remov	al will	be de	a reducing at termined as a omposition, a	a func	tion of t	empera		=
C	ontent has l	been c	onvert	ed into solid	fossil	fuel th	h <mark>at</mark> can	be burned of	er cent sulfur directly in ulfur emission.
	NTIFY PROFESSIONAL, etc.)	DNÀL SCH	OOL INV	OLVED (Medical, S	IGNATU	RE OF PRINC	CIPAL INVE	STIGATOR	DATE
	· ·								11/25/75
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X	NEGOTIATED CO			. 7		RESPONSIBL		ZATION	
E) (k)	RESEARCH GRA	F.Y.	NO OF 5	ENTURE VEARS TON	T A T11.00	EPA/RTP	7		· j
UN	1500 K	75	ASSURE	FUTURE YEARS TEN D BEYOND CURRENT	F.Y.	- 1	STARTING		ESTIMATED COMPLETION DATE 7/6/77
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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	FPA 77AAL		
Technical Support for Chemical Desulfurization and State Names, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Marvin Lopez - Principal Investigator	ynthetic Fuel Programs IS OR PROJECT DIRECTORS AND ALL OTHER		
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Catalytic, Inc. P.O. Box 11402			

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.

Charlotte, North Carolina 28209

The object of this task is to develop the conceptual design of a flexible Pilot Test Unit for the environmental and process testing of a system (or systems) for producing liquids, solids and gases from coal, using solvent extraction, pyrolysis and hydro liquefaction processes.

The product of this task will be a technical report presenting a discussion of available or developing coal liquefaction processes, conceptual design of a Pilot Test Unit for all processes which are best suited for a laboratory scale test facility and a final conceptual design of an "optimal" Pilot Test Unit for the installation and operation at EPA's Laboratory, Research Triangle Park, North Carolina. A cost estimate for the installation and operation will be provided.

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	IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					URE OF PRINC	DATE		
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				, F(OR OFFIC	E USE ONLY			
SUPPORT METHOD (Check one) TASK NO.			TASK NO.	PROJECT OFFICER					
	AGENCY STAFF	(Intramur	al)]		L. Lorenzi, Jr.			
х	NEGOTIATED C	ONTRAC	г	1	7	RESPONSIBLE ORGANIZATION			
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\$45,600 75						1	1 July 1975	31 Dec. 1975	

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77AAL

TITLE OF PROJECT Dev. of a Comprehensive Sampling & Analytical Strategy for Refining Waste Streams & Eval. of NO & Hydrocarbon Emissions, Control Tech. & Ambient Impact 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_{x} .

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 $_{\rm x}$ and hydrocarbons from identified source categories.

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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE
					Dr.	D. Carlt	on	
				FO	R OFFICI	E USE ONLY		
SUPPORT METHOD (Check one) TASK NO.					PROJECT OFFICER			
	AGENCY STAFF (Intramural)			I. A. Jefcoat				
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	RESEARCH GRA	NT				IERL-F	RTP / EPA	
		UTURE YEARS TENTATIVELY BEYOND CURRENT F.Y.			STARTING DATE	ESTIMATED COMPLETION DATE		
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· U.s.	ENVIRONMENT	AL PROTECTION AGENCY	•		arn: Approi ed 3 No. 158-R0021
NO	OTICE OF RE	SEARCH PROJECT		PROJECT NO. (D	o not use this space)
T 19	HE SMITHSONIA	N SCIENCE INFORMATION	EXCHANGE	EPA 77AAL-	90B
TITLE OF PROJECT The Utility of	f Solid Sor	bents for Sampling	Organic	Emissions from S	tationary Sources
GIVE NAMES, DEPARTME	NTS, AND OFFI	CIAL TITLES OF PRINCIPAL	INVESTIGAT	ORS OR PROJECT DIRECT	ORS AND ALL OTHER
		N THE PROJECT.			,
Dr. William 1	Hedley				
NAME AND ADDRESS OF A					
Davton Labor	ratory				
1515 Nichola	s Road	ı			
SUMMARY OF PROPOSED	WORK - (1) Obj	ectives, (2) Appreach, (3) Cu	rent Plans and,	or Progress (200 words or 1	ess. Omit confidential data).
porting research and are for	nce information i rwarded to invest	Exchange, summaries of work ligators who request such info	in progress are rmation. Your s	exchanged with government summary is to be used for the	and private agencies sup- ese purposes.
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		vestigate the utili			
		stationary source			
	-	g materials with roof these effluent s	•	temperature, con	iposition,
		studies shall be fo			
Some means,	such as o	cryogenic trapping	, shall be	provided to dem	onstrate trapping
		nt species. Field			made, whenever
reasible, to	wet imbriid	ger or other conver	itional tie	.1115.	
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dental, etc.)		FOR OFFICE	·		DATE
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SUPPORT METHOD (CONTACT AGENCY STAFF (Int. NEGOTIATED CONTACT RESEARCH GRANT	Check one) tomutal) RACT	FOR OFFICE TASK NO. 77AAL-90B	PROJECT OF L.D. RESPONSIBLE IERL-R	FICER Ohnson ORGANIZATION TP, IPD, PMB	
SUPPORT METHOD (C) AGENCY STAFF (Int. NEGOTIATED CONT RESLARCH GRANT FUNDS OBLIGATED F.Y	Check one) romural) RACT	FOR OFFICE	PROJECT OF L.D. RESPONSIBLE IERL-R	FICER Ohnson ORGANIZATION	DATE STEMATED COMPLETION DATE 10/30/75

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081		
	PROJECT NO. (Do not use this space)		
NOTICE OF RESEARCH PROJECT	SSIE		
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAL-90B		
TITLE OF PROJECT			
Technical Services in Air Pollution Sample Acquisitio	n and Analysis		
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Dr. William H. Hedley			
,			
NAME AND ADDRESS OF APPLICANT INSTITUTION Monsanto Research Corporation Dayton Laboratory			
1515 Nicholas Road			
Dayton, Ohio 45407			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or			

porting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes.

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.

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.

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.

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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					SIGNATURE OF PRINCIPAL INVESTIGATOR		DATE		
N.A.								17 Sept. 1975	
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SUPPORT METHOD (Check one) TASK		TASK NO.		PROJECT OFFICER					
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х	NEGOTIATED C	ONTRACT		77111-00	77AAL-90B RESPONSIBLE ORGANIZATION IERL-RTP, IPD, PMB				
	RESEARCH GRA	N T		//AAL-30			RTP, IPD, PMB		
	\$1,644	F.Y.		future years to beyond curren Unknown	NT F.Y.	Y	STARTING DATE 3 May 1974	ESTIMATED COMPLETION DATE 3 May 1977	

U.S. ENVIRONMEN	TAL PROTECTION A	GENCY	0	Form Approved MB No. 158-R0081					
		•	PROJECT NO.	(Do not use this space)					
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PREPARED FOR THE SMITHSON	IAN SCIENCE INFORM	IATION EXCHANGE	EPA 77A	AL-90C					
TITLE OF PROJECT									
Guidelines for IERL/R GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF PE	SURANCE Progra	IM TORS OR PROJECT DIRE	CTORS AND ALL OTHER					
Dr. Forest Mixon									
r		- To .							
NAME AND ADDRESS OF APPLICANT IN Research Triangle Ins	titute								
Post Office Box 12194									
Research Triangle Par									
SUMMARY OF PROPOSED WORK - (1) Of In the Smithsonian Science Information porting research and are forwarded to inve	Exchange, summaries stigators who request s	of work in progress are uch information. Your	e exchanged with governme summary is to be used for	nt and private agencies sup- these purposes.					
The implementation covering a wide range capable of incorporations.	of technologi	es requires a	quality assurance						
				/DTD project					
The project will possible officers in providing for the following issues	or adequate q	uality assuran	ice measures on						
 Criteria for e Application o 	 Statements for inclusion in RFP's Criteria for evaluating QA in proposals and work plans Application of QA during project implementation 								
				·					
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Individual operational school	21.150	LONATURE OF BEILL	NOAL DIVERTIES TO						
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RESEARCH GRANT	//AAL-30	IERL-R	TP, IPD, PMB	ordina se, se algos soluti a una de communica se communica proposa de solutiva de la compansa de communicación					
FUNDS OF GATED F.Y. NO. OF	FUTURE YEARS TEN	TATIVELY	STARTING DATE	ESTIMATED COMPLETION					

\$20,466

_~ 75

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

Unknown

6/27/75

ESTIMATED COMPLETION DATE 12/30/75

U.S. EN	VIRONMENTAL PROTECTION	AGENCY	o	Form Approved MB No. 158-R0081
			PROJECT NO.	(Do not use this space)
нот	CE OF RESEARCH PRO	JECT	SSIE	
			EPA 77AA	110
PREPARED FOR THE S	SMITHSONIAN SCIENCE INFO	RMATION EXCHANGE	1	K-01
TITLE OF PROJECT				
Environmental A GIVE NAMES, DEPARTMENTS,	Assessment of Co	al Cleaning	Processes	CTORS AND ALL OTHER
PROFESSIONAL PERSONNEL	ENGAGED IN THE PROJECT.	FRINCIFAE INVESTIGA	TONS ON PROJECT DING	CTORE AND MEE CTIVE
	Interim - fi	nal expected	June 76	
NAME AND ADDRESS OF APPI	LICANT INSTITUTION			
•				
	·		•	
	Information Exchange, summari	es of work in progress as	e exchanged with governme	
U. S. energy po	olicy requires t	he accelerat	ed developmen	t and imple-
	vironmentally s			
	ce. Physical an		, •	
				to remove element
	n dangerous air			These coal clean-
	and associated s			
				es which must be
	avoid adverse en			
	this effort is			
	sions, residue d			
				e and coal clean-
ing processes.	This effort wi	ll cover a w	ide range of	activities which
will include:	technology over	view studies	, development	of detailed
				ssment criteria
and evaluation	plans, developm	ent or detai	led process o	riented test
plans, periorma	ince and evaluat	ion or envir	onmental test	s, generation of
	mpact studies,			
	.lution control .ire in-depth ex	methous Ad	equate perfor	mance of this
	eering analysis			test and
analysis, engin	reering analysis	and economi	c analysis.	•
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X NEGOTIATED CONTRACT	77AAK-01	1	.E ORGANIZATION	
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N/A

ESTIMATED COMPLETION DATE

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U.S. ENVIRONMENTAL PROTECTION AG	ENCY	For	rm Approved
			No. 158-R0081
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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMA	TION EXCHANGE	EPA-IAG-D5-	e685 – aj
TITLE OF PROJECT			
Physical/Chemical Coal Cleaning Technologive names, departments, and official titles of principles.	ogy Developme	nt	
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	NCIPAL INVESTIGAT	TORS OR PROJECT DIRECTO	RS AND ALL OTHER
Albert W. Deurbrouck, Acting Chief, Coal	l Preparation	and Analysis Grou	q
Area Code/Phone: 412-892-2400 Ext. 261	•	•	
NAME AND ADDRESS OF APPLICANT INSTITUTION	a 5 a	W	
Coal Preparation and Analysis Group, U.		Mines	
4800 Forbes Avenue, Pittsburgh, Pennsyl	vania 19213		
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach,	(3) Current Plans and	or Progress (200 words or les	ss. Omit confidential data).
In the Smithsonian Science Information Exchange, summaries of porting research and are forwarded to investigators who request su			
Conduct research on the development of	practical phy	sical and chemical	coal cleaning
technology for the removal of sulfur an l. Sulfur and ash release potenti	dash. The f	ollowing areas Wil	l be studied: and float-sink
tested			
2. Development of a physical coal ysis, optimal design and operation, and	cleaning com	puter model for per	rformance anal-
ysis, optimal design and operation, and operation.	economic eva	rustion of the coa	T MEDITINE
3. Testing and assessment of the	first commerc	ial two-stage frot	h-flotation
process for removal of pyritic sulfur f 4. Research to improve or develop	rom fine size techniques a	coal. nd approaches to m	echanical
dewatering of the fine size desulfurize	d coal.		
5. Laboratory or bench scale eval	uation of new	or novel concepts	for physical
or chemical coal cleaning such as the h	ot aqueous ca	dstic process for	Sullar and
6. Evaluate the performance chara	cteristics of	coal washing equi	pment.
7. Miscellaneous studies in suppo Major Milestones:	rt of the abo	ve.	
Publish undate of report on co	al cleanabili	ty studies.	
la. Publish preliminary report on	cleanability	of Northern Appala	chian region
coals. 1b. Publish final report on cleans	hility studie	es for Northern App	alachian region.
2. Publish interim report on the	physical coal	. cleaning computer	model.
3a. Complete construction of the c	ommercial two	-stage froth flota	tion process.
3b. Publish report on the test pro 4. Publish interim report on adso	gram for the rption-desorp	two-stage from in	two-stage
froth flotation.	-		
5. Complete preliminary bench sca 6. Publish interim report on stat	le evaluation	l of hot aqueous ca	ustic process.
6. Publish interim report on stat	ab of in-noab	.0 COOT 0700 P-	-0
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dental, etc.)	O(x-1)	A DE ALMA	DATE
NA f	or Albert W.	V II and and	08-12-75
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SUPPORT METHOD (Check one) TASK NO.	PROJECT OF		
X AGENCY STAFF (Intramural)	RESPONSIBL	V. Deurbrouck E ORGANIZATION	
NEGOTIATED CONTRACT 1	Coal Pre	eparation and Analy	rsis Group
FUNDS OBLIGATED, F.Y. NO. OF FUTURE YEARS TENT ASSURED BEYOND CURRENT		reau of Mines STARTING DATE	ESTIMATED COMPLETION
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1 200 K 1076 5		FY 1962	FY 1981

1976

FY 1962

FY 1981

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	EPA-IAG-D5-E685-AK				
TITLE OF PROJECT Coal Cleaning Waste Disposal and Reuse					
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	R PROJECT DIRECTORS AND ALL OTHER				
Albert W. Deurbrouck, Acting Chief, Coal Preparation and Area Code/Phone: 412-892-2400 Ext. 261	Analysis Group				
Coal Preparation and Analysis Group, U. S. Bureau of Min 4800 Forbes Avenue, Pittsburgh, Pennsylvania 15213	es				
SUMMARY OF PROPOSEO 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.)					İ	lbert W.	ملا بيعا	cobsen	08-12-75
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	SUPPORT METHO	DD (Check	one)	TASK NO.		PROJECT OF	FICER		
Х	AGENCY STAFF	(Intramure	a <i>l)</i>		Albert W. Deurbrouck				
x	NEGOTIATED C	ONTRACT		1	RESPONSIBLE ORGANIZATION				
	RESEARCH GRA	NT			U.S.B	Preparation and Analysis Group Bureau of Mines		ysis Group	
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS T				LY	STARTI	NG DATE	ESTIMATED COMPLETION		
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U.S. ENVIRONMENTAL PROTECTION	AGENCY		orm Approved 3 No. 158-R0081
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NOTICE OF RESEARCH PRO	JECI	SSIE EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFO	RMATION EXCHANGE	EPA-IAG-D5-	-E685-AL
TITLE OF PROJECT			
Coal Washing Test Facility GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.		OR PROJECT DIRECTO	ORS AND ALL OTHER
Albert W. Deurbrouck, Acting Chief, C Area Code/Phone: 412-892-2400 Ext. 2	oal Preparation an 61	d Analysis Grou	ир
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Coal Preparation and Analysis Group, 4800 Forbes Avenue, Pittsburgh, Penns		nes	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approx In the Smithsonian Science Information Exchange, summarise porting research and are forwarded to investigators who request to test new techniques and equipment for preparation of the desulfurized colosses. The test facility would also coal for EPA projects in combustion to bustion and synthetic fuel process remains Major Milestones: 1. Complete plant design. 2. Complete construction. 3. Publish report on first year	es of work in progress are exchit such information. Your summit est facility in Pifor removal of sultoal for transportate be used to product testing, flue gas saw and acid gas cle	tsburgh which government a lary is to be used for the ttsburgh which fur and ash frotion with minim to ton lots of scrubbing, fluid	end private agencies sup- se purposes. can be used om coal and num dust specification
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL	INVESTIGATOR	DATE
NA .	for Albert W. Deu	rbrouck	08-12-75
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SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFICE	Ŕ	

FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

X AGENCY STAFF (Intramural)

X NEGOTIATED CONTRACT

RESEARCH GRANT

FUNDS OBLIGATED

FOR OFFICE USE ONLY

PROJECT OFFICER

Albert W. Deurbrouck

RESPONSIBLE ORGANIZATION

Coal Preparation and Analysis Group

U. S. Bureau of Mines

FUNDS OBLIGATED

FOR OFFICE USE ONLY

PROJECT OFFICER

ASSURED BEYOND CURRENT F.Y.

STARTING DATE

DATE

January 1979

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT 77AAR PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE TITLE OF PROJECT Environmental Assessment and Systems Analysis of Stationary CRENAMES, DEPARTMENTS, AND BEALTH ANTES OF PHINOPALTROES HEATHERS 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 supporting research and are forwarded to investigators who request such information. Your summary is to be used for these purposes. This effort will provide for environmental assessments and systems analyses of low NO control technologies for stationary combustion sources. 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 control technologies and strategies, and to recommend further development and application of the control technologies as required to meet control objectives. IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL INVESTIGATOR DATE FOR OFFICE USE ONLY

SUPPORT METHOD (Check one)

75

AGENCY STAFF (Intramutal)

NEGOTIATED CONTRACT

RESEARCH GRANT \$129 K Base \$350 K Energy TASK NO.

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

PROJECT OFFICER

Joshua S. Bowen

STARTING DATE

Jan. 76 (Est.)

ESTIMATED COMPLETION

6/80

RESPONSIBLE ORGANIZATION

IERL-RTP/EPA

U.S. ENVIRONMENTAL PROTECTION A	AGENCY		rm Approved No. 158•R0081
NOTICE OF RESEARCH PROJ	ECT	SSIE	not use this space)
PREPARED FOR THE SMITHSONIAN SCIENCE INFOR		77AAR	
TITLE OF PROJECT Field Testing - Appl to Power Generation Combustion GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF P PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	ication of Impro Systems RINCIPAL INVESTIGATORS OR	ved Combust	ion Technology
Interim - fi	nal expected Dec	. 75	
NAME AND ADDRESS OF APPLICANT INSTITUTION			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approac In the Smithsonian Science Information Exchange, summarie porting research and are forwarded to investigators who request The IERL-RTP requires information modification techniques on util stationary engines, gas turbine performance, and efficiency. E SO ₂ , SO ₃ , CO, CO ₂ , O ₂ , gaseous distribution), and toxic and ha in this study include natural g tions of these. Equipment perf tube wall corrosion rate measur slagging to firebox conditions, is affected. As a result of th be prepared, in addition to a f directed toward manufacturers t lowest emission and best effici for operators to indicate how of be modified to reduce emissions	s of work in progress are exchang such information. Your summary on relating the early power-generals) to air pollut missions to be made and the search of t	ffect of co ting equipm ion emission easured ince rticulate (ts. Fuels aste fuel, on will ince ng the relat how boiler ideline man e guideline designs precond will be pment operaticiency.	mbustion ent (boilers, ns, equipment lude NO, NO ₂ , mass and size to be used and combina- lude long-term tion of reliability uals shall will be oduce the e prepared
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T m b s e i a N (c w e a a e d g p	MARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information ing research and are forwarded to invest he IERL-RTP require odification techniquestion equipment (ketationary engines, fficiency, and equipment of the compact o	Exchange, summarie tigators who requests informat: ues and opeilns, oven; and gas turpment perfections in these. Em: 0, 0, 0, gas ibution) and reports the past sturpment sturpment sturpment in the series of the series in the series of the series in the series of the s	s of work such info ion rearties, driver and coil ission of prepared wat dies. esign ult o ared. pe an	in progress are excharmation. Your summar elating the ng variable yers, proces of the second of the second of the second of the progress of the guided will incl	effect of son indust so furnaces ollutant em to be used oil, coal, asured will ns, smoke, s. A surve for testing tudy will d bustion; van, which hamatrix will uel type, a am a final line manual ude design	combustion rial com- , boilers, issions, in this study waste fuel, include NO, particulate y will be , field tests etermine the rying excess ve been include nd combustor report and s will be and operation			
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77	AGENCY STAFF (Intramural) NEGOTIATED CONTRACT	4-2		Robert E.					
X.	INCOLUNICACI	1		1	/mms				

\$100 K Base

RESEARCH GRANT

\$500 K Energy 75

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

IERL-RTP /EPA

Dec. 75 (Est.)

ESTIMATED COMPLETION DATE 6/80

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GIVE NAMES,	DEPA	RTMENTS, AND OFFI	CIAL TITLES OF F	RINCIPAL	INVESTIGATORS OR	PROJECT DIRECT	ORS AND ALL OTHER				
PROFESSIONA	L PE	RSONNEL ENGAGED I	N THE PROJECT.								
Ambrose	P. 8	Selker, Projec	t Manager								
		S OF APPLICANT INS									
Combustion Engineering, Inc.											
1000 Prospect Hill Road											
Windsor			institues (2) Armen	ah (3) C	and Discount for Document		ess. Omit confidential data).				
In the Smit	hs on ia	n Science Information	Exchange, summarie	s of work	rent Plans and/or Progr in progress are exchang rmation. Your summary	ed with government	and private agencies sup-				
(1)	(1) Objective - to investigate the effectiveness and acceptability of employing										
	overfire air as a method for reducing $\mathrm{NO}_{\mathbf{X}}$ emission from tangentially coal										
	fired steam generators.										
(2)	App	proach -									
	(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.										
	(b) Perform baseline tests before installation of system described in (a) and evaluate reduction in NO _x 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.										
(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.											
(3) Current plans and/or progress - Work initiated on item (2) (a) on July 9, 1973. Scheduled completion by 10/75.											
	OF ES	SIONAL SCHOOL INVO	DLVED (Medical,	SIGNATU	RE OF PRINCIPAL IN	VESTIGATOR	DATE				
dental, etc.)							,				
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AGENCY	STAF	F (Intramural)	1-1		David G. Lachapelle RESPONSIBLE ORGANIZATION						

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. Contract Near Completion

X NEGOTIATED CONTRACT

75

RESEARCH GRANT

FUNDS OBLIGATED F.Y.

\$10,000

EPA

STARTING DATE

6/30/73

ESTIMATED COMPLETION DATE 10/75

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT FPA 77AAS PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE TITLE OF PROJECT Analysis of NO_x Control in Stationary Sources GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Mr. Owen W. Dykema Manager, Combustion Effects NAME AND ADDRESS OF APPLICANT INSTITUTION The Aerospace Corp. 2350 East El Segundo Blvd. El Segundo, Calif. 90245 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. Under ongoing programs $\mathrm{NO}_{\mathbf{X}}$ 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 coalfired 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 $\mathrm{NO}_{\mathbf{x}}$ 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_x could be achieved. This research grant includes three sub-tasks involved in the general investigation of practical methods to reduce NO_x emissions in tuility 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. IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL INVESTIGATOR DATE dental, etc.) N.A.

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	U.S. ENVI	RONMENT	AL PROTECTION A	GENCY	·			m Approved No. 158-R0081				
	NOTIC	E OF RE	ESEARCH PROJECT				PROJECT NO. (Do SSIE	not use this space)				
PREPARED FO	R THE SM	AIMOZHTI	N SCIENCE INFOR	MATION EXC	EXCHANGE 77AAS							
Design, Component Purchase and Fabrication of an Experimental Multi-Burner Furnace												
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.												
L.W. Anderson, Program Manager												
R.A. Brown, Project Engineer F.E. Moreno, Project Engineer												
r.E. Moleno, rioject Engineer												
NAME AND ADDRESS	OF APPLI	CANT INS	TITUTION			······································						
Aerotherm Division, Acurex Corporation 485 Clyde Avenue Mountain View, CA. 94042												
SUMMARY OF PROPOS	SED WORK Science In	- (1) Obj formation E	Exchange, summaries	s of work in p	rogress are	exchange	d with government a	ss. Omit confidential data). nd private agencies sup- se purposes.				
basic multi- safeguard s	-burner ystem. bricate	combu This	project will omponents of	er, burr complet	ers, fl	ue gas letaile	s gooling sys d system des	stem and flame				
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SUPPORT METHO	DD (Check	one)	TASK NO.		OJECT OF		ahanollo					
AGENCY STAFF (Intramutal)			2 0	RE	David G. Lachapelle RESPONSIBLE ORGANIZATION IERL-RTP, EACD, CRB / EPA							
X NEGOTIATED CONTRACT RESEARCH GRANT			2-9									
FUNDS OBLIGATED \$50,700	INDS OBLIGATED F.Y. NO. OF FUTURE YEARS TENTATIVE			NTATIVELY omplete	d	STARTIN	1G DATE 11/74	ESTIMATED COMPLETION DATE 8/75				
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Form Approved II.S. ENVIRONMENTAL PROTECTION AGENCY OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77AAS Pilot Scale Evaluation of Advanced Combustion Control Tech. for Fossil & Waste Fuels GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. 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). 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 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_X) through modification of combustion conditions. The facility is a subscale versatile furnace, with capacity of 3 \times 10⁶ 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 106 Btu/hr. The first year effort will focus on $\mathrm{NO}_{\mathbf{x}}$ 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 $NO_{\mathbf{x}}$ control through two-stage combustion, flue gas recirculation and low excess air firing for the wall fired and tengentially fired configurations. Emphasis will be given to identification of optimum staging conditions for reduction of NO_x from coal fired boilers. The second year program will explore $\mathrm{NO}_{\mathbf{X}}$ control techniques for the firing of mixed conventional fuels, new alternate fuels, waste fuels, and mixtures of conventional fuels with alternate or waste fuels. IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL INVESTIGATOR DATE dental, etc.) N/A FOR OFFICE USE ONLY SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICER AGENCY STAFF (Intramural) David Lachapelle

\$200,000

NEGOTIATED CONTRACT

75

RESEARCH GRANT

2-10

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

RESPONSIBLE ORGANIZATION

IE RL-RTP EPA

STARTING DATE

6/06/75

ESTIMATED COMPLETION

ີ່ 10/06–77

	U.S. ENVIRONMENT	AL PROTECTION A	GENCY		rm Approved No. 158-R0081
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	NOTICE OF RE	SEARCH PROJ	ECT	SSIE	
	PREPARED FOR THE SMITHSONIA	N SCIENCE INFOR	MATION EXCHANGE	77AAS	
–	e of Project sidential Oil Furnace Sy	stem Optimi	zation		
GIVE PROF	names, departments, and officessional personnel engaged in the Blair Martin, Project C	CIAL TITLES OF PENT THE PROJECT,		S OR PROJECT DIRECTO	ORS AND ALL OTHER
	E AND ADDRESS OF APPLICANT INS				
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dent	tal, etc.)		S/ R OFFICE USE ONLY PROJECT OFFI	CER	DATE
dent	None	FO	S/ R OFFICE USE ONLY PROJECT OFFI	cer r Martin	DATE

\$300 K

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

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STARTING DATE

6/30/74

ESTIMATED COMPLETION DATE

3/30/76

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TITLE OF PROJECT Assessmen	nt and App	licati	on of Combu	stion Addi	tive Process
for NO Control GIVE NAMES, XDEPARTMENTS, AND OFF				_	
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porting research and are forwarded to inve	stigators who reques	t such info	rmation. Your summary	is to be used for the	se purposes.
This effort provides					
nology for post-flame reduction of NO to	e injection	n of a	gaseous sp	ecies (NH ₃ ,) to promote
necessary information	n to docum	ent fe	asibilitv a	nd estimate	costs for
applying this techno.					
of the Phase I work					
to proceed with the	second phas	se of	work. Phas	e II, entit	led "Field
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technology for two 1					
0.3 to 0.4 1b/10 ⁶ Bt	u. The res	sült d	f the Phase	II effort	will be a
final report documen					
Additionally, the reprint implementation costs					
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dental, etc.)					
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SUPPORT METHOD (Check one)	TASK NO.	ROFFICE	PROJECT OFFICER		
AGENCY STAFF (Intramural)	1		David G. L	achanalla	
X NEGOTIATED CONTRACT	4-4		RESPONSIBLE ORGA		

\$200 K

RESEARCH GRANT
FUNDS OBLIGATED F.Y.

75

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

STARTING DATE

Jan. 76(Est.)

ESTIMATED COMPLETION

U.S. ENVIE	RONMENTAL PROTECTION	AGENCY	Fo	rm Approved
				No. 158-R0081
NOTICE	E OF OFCE + DOLL DD.		PROJECT NO. (Do	not use this space)
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PREPARED FOR THE SM	ITHSONIAN SCIENCE INFOR	MATION EXCHANGE	77AAS	
TITLE OF PROJECT			//AAS	
Advanced Combust	ion Systems fo	r Stationary	Cas Turbina En	ninae
GIVE NAMES, DEPARTMENTS, A	ND OFFICIAL TITLES OF F	RINCIPAL INVESTIGA	TORS OR PROJECT DIRECTO	ORS AND ALL OTHER
PROFESSIONAL PERSONNEL EN	NGAGED IN THE PROJECT.			
	Interim	- final expe	cted Feb. 76	
NAME AND ADDRESS OF APPLI	CANT INSTITUTION			
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for stationary g	as turbine eng	ines. This	program is desi	gned to
develop new hard				
potential retro				
placed on low en	missions, high	efficiency,	and fuel versat:	ility to
directly address		-		
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systems based or				
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These combustion be used in the			n practical rue.	is that will
be used in the	race 1770 5 and	1700 5.		
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IDENTIFY PROFESSIONAL SCH	OOL INVOLVED (Medical,	SIGNATURE OF PRIN	ICIPAL INVESTIGATOR	DATE
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75

\$450 K

Jan. 76(Est.)

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do not use this space)
	EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAS
With application to stationary sources or surfice of the special stationary sources or professional personnel engaged in the project. Dr. R. M. Kendall; Chief Corporate Scientist & Vice Presidency and Environmental Sciences/ Dr. L. W. Anderson; Man Engineering Systems/ Dr. J. P. Kesselring; Staff Engineer Mr. C. D. Hartman, Senior Project Engineer/ Mr. A. J. Mun NAME AND ADDRESS OF APPLICANT INSTITUTION Aerotherm Division/Acurex Corporation 485 Clyde Avenue Mountain View, California 94042 SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Program the Smithsonian Science Information Exchange, summaries of work in progress are exchan porting research and are forwarded to investigators who request such information. Your summary The objective of this program is the establishment of design of catalytic combustion to low emission, high efficiency is concept, extractly contained and compusion concept, extractly catalytic and compusion concept, extractly and compusion concept.	dent/ Dr. C. B. Moyer; Manager nager, Environmental r, Aerothermochemistry Dept./rphy, Staff Engineer. gress (200 words or less. Omit confidential data). ged with government and private agencies supy is to be used for these purposes. gn criteria for application stationary combustion systems. nsisting of experimental
small-scale catalyst and combustor concept screening, expessale-up work for promising concepts, and design developmed on selected concepts has been outlined. Current plans are to secure several catalyst systems for experiments, under a variety of conditions and for several on the results of a single-component catalyst systems, must systems will be developed and tested extensively. The most then be further tested by integration into a practical conscale tests will investigate the effects of interstage codair, and bed heat removal. Data from these tests will be catalytic systems and specific equipment applications, and mechanisms of catalyst performance by correlating the result and by conducting detailed analytical studies with appropriace ounting for flow, diffusion, homogeneous and heterogeneous transfer. Larger-scale catalyst system and system conceptual designs of promising concepts will be made.	small-scale screening 1 different fuels. Based 1ti-component catalyst st promising systems will mbustion system. These small- oling, mixing of secondary used to define optimum d also to identify the ults with system properties riate computing technique, eous reaction effects, and oncept development experiments t of optimum system, and

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNATURE OF PRINCIPAL INVESTIGATOR DATE			DATE		
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	SUPPORT METHOD (Check one) TASK NO.				PROJECT OFFICER			
	AGENCY STAFF (Intramural)		G. Blair Martin					
х	NEGOTIATED C	ONTRAC	т	6-2	RESPONSIBLE ORGANIZATION			
	RESEARCH GRANT			IERL-F	RTP / EPA			
FU	FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TE ASSURED BEYOND CURREN		ENTATIVE NT F.Y.	ELY	STARTING DATE 6/30/75	ESTIMATED COMPLETION DA 12/30/76		

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	NOTICE OF RI	ESEARCH PROJ		SSIE	not use this space)			
	PREPARED FOR THE SMITHSONIA	EPA	77AAS					
Adv	of PROJECT Canced Concepts for Eff	fluent Treatm	ent of	Flue Gases f	or NO _x Contro	ol		
GIVE PROF	NAMES, DEPARTMENTS, AND OFFI ESSIONAL PERSONNEL ENGAGED I	CIAL TITLES OF P	PRINCIPAL	INVESTIGATORS O	R PROJECT DIRECTO	RS AND ALL OTHER		
Dr.	Raimond Liepins							
	AND ADDRESS OF APPLICANT INS							
	search Triangle Institut O. Box 12194	e						
	search Triangle Park, N	I.C. 27709						
SUMM In	ARY OF PROPOSED WORK - (1) Ob- the Smithsonian Science Information is g research and are forwarded to invest	jectives, (2) Approac Exchange, summarie	s of work	in progress are exchar	iged with government a	nd private agencies sup-		
•	The techniques for co	ontrolling NC	$D_{\mathbf{x}}$ emi	ssions from s	tationary sour	ces are		
	mbustion modification a	_						
rec	luces the amount of NO	\mathbf{x} formed who	ile flu	e gas treatme	nt (FGT) remov	es the NO _x		
fro	m the stack gases after	r it has been	forme	d.				
for	It is the purpose of the vanced concepts for effort becoming a useful NO quired for further evaluations.	fluent treatm x removal pr	ent to	determine wh	ich offer the n	nost promise		
	Initial studies consid	dered for inv	estiga	tion include:				
	 Simultaneous NO_X/SO_X Scrubbing with Organic liquids and/or solids. NO_X Scrubbing, with Hydrated Polyamides. NO_X Scrubbing, using dilute Acid Urea. NO_X Scrubbing, using Fluorocarbons. NO_X Scrubbing, using Cellulosics. NO_X Scrubbing, Synergism Phenomenon. 							
	Pending results of in							
	ncepts will be undertak							
WI	ll include consideration condary effects of the c	n or erruent	gases	, mquius, and	rovel concents	s come to light.		
se +h	e EPA Project Officer ma	contion proce	contra	actor to perfo	m studies and	l analysis as		
	propriate.	ay ancor the				•		
IDEN	TIFY PROFESSIONAL SCHOOL INVO	DLVED (Medical,	SIGNATU	RE OF PRINCIPAL I	NVESTIGATOR	DATE		
	N.A.					Sept. 17, 1975		
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S	UPPORT METHOD (Check one)	TASK NO.		PROJECT OFFICER Roger Chr	istman			
 	AGENCY STAFF (Intramural)	6-4		RESPONSIBLE ORG	ANIZATION	<u></u>		
×	NEGOTIATED CONTRACT	1		IERL-RTP,	UIPD, PTB/	EPA		

\$59,200

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

STARTING DATE

6/75

ESTIMATED COMPLETION

12/75

U.S. ENVIRONMENTAL PROTECTION	DN AGENCY		orm Approved 3 No. 158-R0081
		PROJECT NO. (D	o not use this space)
NOTICE OF RESEARCH PR	SSIE EPA		
PREPARED FOR THE SMITHSONIAN SCIENCE INF	FORMATION EXCHANGE	77AAS	
Burner Design Criteria for Current	and Future Gaseous	Fuels	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES O PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT		OR PROJECT DIRECT	ORS AND ALL OTHER
D.H. Larson, Project Manager			
D.R. Shoffstall, Technical Superv	isor		
NAME AND ADDRESS OF APPLICANT INSTITUTION Institute of Gas Technology 3424 South State Street IIT Center			
Chicago, Illinois 60616 SUMMARY OF PROPOSED WORK - (1) Objectives, (2) App In the Smithsonian Science Information Exchange, summar	aries of work in progress are excl	nanged with government	and private agencies sup-
porting research and are forwarded to investigators who requ	est such information. Your summ	nary is to be used for th	ese purposes.
The objective of this study is previous IGT programs and to cond produce optimum, low-emission by The study will establish the relation designs and classical modification parameters will be changed. The alternative control strategies for the control strategies for the control strategies.	duct carefully planne urner design criteria ve controls availabl n techniques as well specific result of the gas systems. It will	ed additional extends for the major less through the war as establish with the program will also provide a	xperiments to burner classes. various burner what operation l be to establish a basis for low-
pollution design criteria with othe	r fossil fuel systems	s including low	-Btu gases.
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINCIPAL	INVESTIGATOR	DATE
			17 Sept. 1975
	FOR OFFICE USE ONLY		<u> </u>
SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFICE		
AGENCY STAFF (Intramutal)		Lachapelle	
X NEGOTIATED CONTRACT 7-2	RESPONSIBLE OR	GANIZATION	

FUNDS OBLIGATED

\$30,000

F.Y.

75

RESEARCH GRANT

NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. $\mathbf{1}$

IERL, EACD, ORB / EPA

STARTING DATE

6/30/73

ESTIMATED COMPLETION 8/30/76

U.S. ENVIRONMEN	TAL PROTECTION	AGENCY	O.A	Form Approved IB No. 158-R0081
NOTICE OF R	ESEARCH PROJ	ECT		Do not use this space)
PREPARED FOR THE SMITHSON	EPA 77AAS			
TITLE OF PROJECT Developmen	nt of Scale-up	Criteria for B	urner Design and	Application
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF P	RINCIPAL INVESTIGA	TORS OR PROJECT DIREC	TORS AND ALL OTHER
Dr. M.P. Head, Projec	t Director	Mr. R. Ger	shman	
Dr. T.T. Tyson		Mr. R. E.	Chamness	
Mr. G. Carver				
NAME AND ADDRESS OF APPLICANT IN Ultrasystems, Inc.	ISTITUTION			
2400 Michelson Dr.				
Irvine, CA 92664				
SUMMARY OF PROPOSED WORK - (1) O In the Smithsonian Science Information porting research and are forwarded to inve	n Exchange, summarie	s of work in progress as	e exchanged with governmen	nt and private agencies sup-
The objective of th	e project is t	o arrive at des	ign criteria for lo	ow emission
burners for application				
criteria allowing applic	ation of the o	oncepts to a v	ariety of source	sizes.
The approach is ba	sed on small	scale (5 \times 10 ⁶	Btu/hr) experime	ental studies
showing the potential fe	or reducing N	Ox levels from	pulverized coal	burners to the
100-200 ppm level (from				
theoretical program to p				
practical interest (100-				
the data to derive the c	riteria and to	assess multip	ole burner interac	tion effects.
				•
IDENTIFY PROFESSIONAL SCHOOL IN dental, etc.)	/OLVED (Medical,	SIGNATURE OF PRIN	CIPAL INVESTIGATOR	DATE
N.A.				9/17/75
	En	R OFFICE USE ONLY		
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X NEGOTIATED CONTRACT	7-3	EPA,	LE ORGANIZATION TERT.	,
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\$800 K

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158•R0081		
	PROJECT NO. (Do not use this space)		
NOTICE OF RESEARCH PROJECT	SSIE		
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAS		

Fuel Decomposition and Flame Reactions in Conversion of Fuel Nitrogen to NO_X

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_X 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_X formation from HCN and NH3 in premixed CH4 flames including: (1) interactions with thermal NO_X 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.)				SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE	
N/A				A. Axworthy 6/27/75			6/27/75	
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Defi	nition of	the M	echani	sm and Kine	tics of the Form	nation of NO _x a	and Other Pollutants			
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(1)	(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 _X formation and decomposition reactions, as they relate to hydrocarbon combustion.									
(2)	reactor a	and the	e new	Adiabatic Sti		SC). Theoretic	iburner, Jet-Stirred cal analyses are			
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U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT FOA PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77AAS TITLE OF PROJECT Investigation of Aerodynamic Phenomena in Pollution Control

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

United Aircraft Corporation Research Laboratories

400 Main Street

East Hartford, Connecticut 06108

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 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:

- (1) To utilize recently developed optical and probing techniques to obtain detailed information on the chemical and physical processes occuring inside a combustor operating on gaseous and liquid fuels.
- (2) To compare experimental observations with results from a combustor flow analysis (FREP code) to further evaluate the theoretical model.
- (3) To further develop the combustor flow analysis for predicting the physical and chemical processes occuring in combustors operating on gaseous and liquid fuels.
- (4) To utilize information obtained from the experimental and theoretical investigation to evaluate potential emission control strategies for gaseous and liquid fuel combustors.

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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	77AAS
Title of Project Technical Services in Air Pollution Sample Acquisition	and Analysis

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

Dr. Forest Mixon

NAME AND ADDRESS OF APPLICANT INSTITUTION
Research Triangle Institute
Post Office Box 12194

Research Triangle Park, N.C. 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.

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 carry out this function, non-routine situations arise which require the utilization of measurement expertise and/or facilities not available within the Laboratory.

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.

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 specteoscopy; electron microscopy; optical, electrical or aerodynamic particle size.

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STARTING DATE

Jan. 76 (Est.)

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F	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_{X} 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_{X} are in-effect for specific existing and new combustion sources.									
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STARTING DATE

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TITLE OF PROJECT	

Complex Terrain Modeling Study

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

George C. Holzworth, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

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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 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&D.

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_2 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.

This effort will seek to provide comprehensive data on SO₂ emissions in complex terrains by continuous monitoring at remote locations of expected high SO₂ 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.

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RESEARCH GRANT FUNDS OBLIGATED F.Y. \$600 K Base 75

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IERL-RTP, IPD, CPB / EPA

Mar. 6, 1975

ESTIMATED COMPLETION DATE NOV. 3, 1975

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TITLE OF PROJECT

Preparation of a Guideline Document for Environmental Assessment of Energy Systems GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Paul F. Fennelly, Arthur S. Werner

NAME AND ADDRESS OF APPLICANT INSTITUTION
GCA Corp., GCA/Technology Div.
Burlington Rd.

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.

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.

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	AGENCY STAFF	(Intramur	a1)		Ronald A. Venezia			
х	NEGOTIATED CONTRACT 3		RESPONSIBLE ORGANIZATION					
	RESEARCH GRA	NT			IERL-RTP, IPD, CPB/EPA		'A	
	DS OBLIGATED	F.Y. 75		FUTURE YEARS TE D BEYOND CURREN N.A.		STARTING DATE 28 Mar. 1975	ESTIMATED COMPLETION DATE NOV. 1975	

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} 77AAU
Develop and Demonstrate Improved Fine Particulate	Filter Systems
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	S OR PROJECT DIRECTORS AND ALL OTHER
Norman Surprenant	

NAME AND ADDRESS OF APPLICANT INSTITUTION

GCA Technology Division 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.

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.

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.

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.

IDE	NTIFY PROFESSIONAL SCHOOL INV	OLVED (Medical,	SIGNATO	RE OF PRINCIPAL INVESTIGATOR	DATE-		
	N.A.				17 Sept. 19 <u>75</u>		
	FOR OFFICE USE ONLY						
	SUPPORT METHOD (Check one)	TASK NO.		PROJECT OFFICER			
	AGENCY STAFF (Intramural)	:-	5.411	J.H. Turner			
х	NEGOTIATED CONTRACT	4	RESPONSIBLE ORGANIZATION		/ ED3		
	RESEARCH GRANT]		IERL-RTP, UIPD, PTB	/ EPA		
FUN	\$42,700 F.Y. NO. OF ASSURE	FUTURE YEARS TE D BEYOND CURRE Unknown	NT F.Y.	starting date 5 June 1974	estimated completion 4 Sept. 1976		

	U.S. EN	VIRONMENTAL PROTECTION	AGENCY		Form Approved B No. 158-R0081
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	NOTI	CE OF RESEARCH PRO.	SSIE		
	PREPARED FOR THE	SMITHSONIAN SCIENCE INFO	RMATION EXCHANGE	EPA 77AAU	I
TITI	LEOF PROJECT Elect	rostatic Precipita	tors for Conti		
Pro	ogram				
PRC	PESSIONAL PERSONNEL	, AND OFFICIAL TITLES OF I ENGAGED IN THE PROJECT.		ANONO OK PROSECT BIKES	
	uthern Research I				
	00 9th Ave., S	.nstitute			
	rmingham, Ala. 35	5205			
		RK - (1) Objectives, (2) Approx	ah (2) Compant Plane	and for Theorem (200 months on	long Omitfidti-1 d-t->
	In the Smithsonian Science :	Information Exchange, summarided to investigators who reques	es of work in progress	are exchanged with governmen	t and private agencies sup-
E10	ectrostatic preci	ipitators are commo	nly used to co	ontrol particulate	emissions from
ef	fluent gas stream	ns. Application of	electrostation	c precipitators is	hampered by
8		collection efficien	•	•	
		y and electrostati			
		al factors on coll			
		l gas chemistry, et			
		ents, and theoretic			
CO	ntractor will als	so develop instrume	ntation necess	sary to obtain the	data.
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	NTIFY PROFESSIONAL SC al, etc.)	HOOL INVOLVED (Medical,	SIGNATURE OF PRI	NCIPAL INVESTIGATOR	DATE
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<u> </u>			R OFFICE USE ONL		
<u> </u>	SUPPORT METHOD (Check		PROJECT Leclia	officer e Sparks	
<u> </u>	AGENCY STAFF (Intramus			BLE ORGANIZATION	
X	NEGOTIATED CONTRAC	4		RTP EPA	
FIIN	DS OBLIGATED F.Y.	NO. OF FUTURE VEARS TO		STARTING DATE	ESTIMATED COURT STICK
FUN	D3 OBLIGATED F.T.	NO. OF FUTURE YEARS TE ASSURED BEYOND CURREN	NT F.Y.	STARTING DATE	ESTIMATED COMPLETION

\$427,800

75

6/30/75

ESTIMATED COMPLETION DATE 12/30/76

U.S. ENVIRONMEN	TAL PROTECTION	AGENCY		Form Approved IB No. 158-R0081		
NOTICE OF R	SSIE	Do not use this space	,)			
PREPARED FOR THE SMITHSONI	7AAU					
TITLE OF PROJECT Design and Fabrication of	a Pilot-Sca	ale Electrostatic F	recipitator		,	
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF I	PRINCIPAL INVESTIGATORS		TORS AND ALL OTH	IER	
INTERIM - final	L expected Ma	arch '76				
NAME AND ADDRESS OF APPLICANT IN	STITUTION					
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.						
	FC	R OFFICE USE ONLY				
SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICE	IR .		-	
AGENCY STAFF (Intramural)	- A	G. H. Ram				
NEGOTIATED CONTRACT 4 RESPON		RESPONSIBLE OR	GANIZATION	RESPONSIBLE ORGANIZATION		

\$1000 K Energy EPA Form 5760-1 (7-72)

\$900 K Base

X NEGOTIATED CONTRACT

RESEARCH GRANT

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

IERL-RTP / EPA

STARTING DATE

Feb. 76 (Est.)

ESTIMATED COMPLETION DATE 6/76

U.S. ENVIRONMENTAL PROTECTION AGENCY		orm Approved 5 No. 158-R0081		
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Da	PROJECT NO. (Do not use this space) SSIE		
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAU			
TITLE OF PROJECT Demonstration of High-Efficiency, Hon Industrial Boilers GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OPROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	_	·		
Interim - final expected Mar. 7	6			
NAME AND ADDRESS OF APPLICANT INSTITUTION				
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Pro In the Smithsonian Science Information Exchange, summaries of work in progress are exchanged porting research and are forwarded to investigators who request such information. Your summar	nged with government a	and private agencies sup-		
Fabric filtration has traditionally been one o collecting particulate matter.	f the major	methods of		
Laboratory and field data have shown fabric field efficient even into the submicron range for a (1, pp.6-103, 6-104). It has, however, been on that serious attempts have been made to use babustion sources. The IERL-RTP is now engaged of baghouses on several utility and industrial efficiencies for flyash down to about 0.01µm.	variety of s nly in the i ghouses on i in measuring	sources last decade large com- g performance		
In order to expand the availability of fabric of fine particulates, it is necessary to provide operate at air-to-cloth ratios greater than prefabrics that can be used at the higher ratios a	de systems v esently used	which can i. and to have		
During the past two years a fabric filter system operating at 4 to 5 times the usual air-to-close	th ratio of	2:1(2).		
The purpose of this effort is to prove the periof the ESR filter system on a small utility boroperating and cost data for users and manufactudurability and effectiveness of new fabrics, ficonditions and determine scale-up factors for paystems.	iler and thu urers, deten ind optimum	is provide rmine operating		
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	NVESTIGATOR	DATE		
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SUPPORT METHOD (Check-one) TASK NO. PROJECT OFFICER				

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SUPPORT METHOD (Check one)

AGENCY STAFF (Intramural)

X NEGOTIATED CONTRACT

RESEARCH GRANT

FUNDS OBLIGATED F.Y.

\$900 K Base

75

Feb. 76 (Est.)

Feb. 76

Feb. 76

U.S. ENVIRONMENTAL PROTECTION AGENCY	F	orm Approved	
	OMB No. 158-R0081		
	PROJECT NO. (De	not use this space;	
NOTICE OF RESEARCH PROJECT	SSIE		
	EPA		
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AA	n. ·	
TITLE OF PROJECT	//AA	0.	
Evaluation & Development of Instrumentation for Process Co	ntrol of Air	horno Ashostos	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR			
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	PROJECT DIRECTO	ORS AND ALL OTHER	
Dr. R. C. Rossi, Section Manager		1	
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	·		
NAME AND ADDRESS OF APPLICANT INSTITUTION			
The Aerospace Corporation		*	
2350 East El Segundo Blvd.		•	
El Segundo, Calif. 90245		Į.	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progr	race (200 mords or to	ar Omit confidential data	
In the Smithsonian Science Information Exchange, summaries of work in progress are exchange			
porting research and are forwarded to investigators who request such information. Your summary	is to be used for the	se purposes.	
The objective of this grant is to develop methodology	to measure	the efficiency	
of devices collecting fiberous material such as asbestos.			
proposed techniques would enable particulate control speci	talists to qu	ickly	
evaluate the performance of collectors applied to this sou		ded development	
should provide a device for process control by the manufac	cturer.		
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dental, etc.)			
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FOR OFFICE USE ONLY SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICER	<u> </u>		
	ward o		
AGENCY STAFF (Intromural) D. Bruce Ha			
NEGOTIATED CONTRACT 4			
	EPA		
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TENTATIVELY STARTI	NG DATE	ESTIMATED COMPLETION	
ASSURED BEYOND CURRENT F.	-8/74	estimated completion DATE 96/17/75	

ENVIRONMENTAL PROTI		Form Approved OMB No. 158-R0081	
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NOTICE OF RESEARCH	H PROJECT	SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE	E INFORMATION EXCHANGE	FPA 77AA	NU-04A
HILE OF PROJECT			
Preparation of a Guideline Doc olve names, designments, and official title professional permission and engaged in the pr	ES OF PRINCIPAL INVESTIG	ental Assessmen ATORS OR PROJECT DIR	ECTORS AND ALL OTHER
Paul F. Farmelly, Arthur S. We	erner		
NAME AND ADDRESS OF APPLICANT INSTITUTION GCA Corp. GCA/Technology I			
Burlington Fd.			
Bedford, Mass. 01730			
SUMMARY OF PROPRIET WORK - (1) Objectives, (2) In the Smithsomer laterice Information Exchange, a porting research and the forwarded to investigators who	summaries of work in progress	are exchanged with governm	ient and private agencies sup-
The project will provide a	guidalina dogumen	t that will come	as a hasis for
standardization of environment			
operations format: a description			
potential environmental impact			
determining the magnitude of the		and the second s	
conducting shvironmental asse			
methods which could be employ			
criteria to be utilized in asses			•
methodology for determining pe			
may result in modified environmental	-		
pollution control systems asso			
is required to assess the poten			
sources of data which the energy			_
mental assessment studies; and	a the accuracy requ	lired in the envir	onmental assessment
studies will be defined.	•		
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AGENCY STAFF Differential)		HE ORGANIZATION	
Indiana and the second		RTP, IPD, CPB	
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75

\$117,900

28 Mar. 1975

ESTIMATED COMPLETION
DATE Nov. 1975

U.S. ENVIRONMENTAL PROTECTION AC	BENCY		m Approved
			No. 158-R0081
NOTICE OF RESEARCH PROJE	СТ	PROJECT NO. (Do	not use this space)
		EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORM	ATION EXCHANGE	77 AAU-0	4A
TITLE OF PROJECT	- D	3	
Evaluation of "Guideline Document for GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	IT ENVIRONMENTAL	Assessment of E	nergy Systems" RS AND ALL OTHER
Sidney Bourgeois, Morris M. Penny			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Lockheed Missiles and Space Co., In			
Huntsville Research and Engineering			
P.O. Box 1103, Huntsville, Alabama SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach		D	- 0.1
In the Smithsonian Science Information Exchange, summaries porting research and are forwarded to investigators who request s	of work in progress are exc	hanged with government a:	nd private agencies sup-
This project is a critique of the	'Cuideline Docu	ment for Environ	mental Assessment
of Energy Systems," and contains the			
potential applicability and usefulnes			
including standardization of data and			
unresolved technical, administrative			
assessment; (4) summary of major co			3
evaluation a preliminary environment			
(2) Magnetohydrodynamics, and (3)	Soar ridueraction	i witi be brebare	α.
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	r		
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	IGNATURE OF PRINCIPA	LINVESTIGATOR	DATE
N.A.			17 Sept. 1975
EAD	OFFICE USE ONLY		
SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFIC	ER	
AGENCY STAFF (Intramural)	Ronald A	. Venezia	
X NEGOTIATED CONTRACT 04A	RESPONSIBLE OF	RGANIZATION	37
RESEARCH GRANT	IERL, RT	P, IPD, CPB /E	7A
			

\$47,900

75

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

22 May 1975

estimated completion date 3 Nov. 1975

U.S ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAU
TITLE OF ODOLEGE	

Evaluation of "Guideline Document for Environmental Assessment of Energy System" GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

P.E. Muehlberg, R.W. Barnes

NAME AND ADDRESS OF APPLICANT INSTITUTION DOW Chemical USA, Texas Div., Contract Research Bldg. A-1214

Freeport, Texas 77541

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 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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNATURE OF PRINCIPAL INVESTIGATOR		DATE			
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AGENCY STAFF (Intramutal)		Ror		Ronal	Ronald A. Venezia			
х	NEGOTIATED C	ONTRACT	-	4A RESPO	RESPONSIBL	RESPONSIBLE ORGANIZATION		
RESEARCH GRANT				IERL-RTP, IPD, CPB		EPA		
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\$900 K Base 75 ASSURED BEYOND CURRE N.A.				6 May 1975	3 Nov. 1975			

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		OMB No. 158-R0081				
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		EPA				
PREPARED FOR THE SMITHSONIAN SCIENCE I	NFORMATION EXCHANGE	77AAU				
TITLE OF PROJECT		IIAAU				
Evaluation of Novel Devices						
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES	OF PRINCIPAL INVESTIGATO	PS OR PROJECT DIRECTO	DE AND ALL OTHER			
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJE		AS OR PROJECT DIRECTO	KS AND ALL OTHER			
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INTERIM - Final expected Dec. 7	5					
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NAME AND ADDRESS OF APPLICANT INSTITUTION						
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		Control of the Contro				
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) A	pproach, (3) Current Plans and/c	or Progress (200 words or les	ss. Omit confidential data).			
In the Smithsonian Science Information Exchange, sun	amaries of work in progress are e	xchanged with government as	nd private agencies sup-			
porting research and are forwarded to investigators who re	equest such information. Your su	immary is to be used for thes	ie purposes.			
Fine particle control from	stationary cources	is important fro	m the etendnoint			
of environmental protection. F						
is now at a very early stage of	_	,				
ment (scrubbers, filters, elect	rostatic precipitat	ors) have shown c	apability for			
collection of fine particulate						
However, to reach these high ef						
size is required. Novel device						
on radical redesign of conventi		The state of the s				
developers. This effort will p						
which show promise for high eff	iciency collection	of fine particula	te.			
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TABLE NO.	FOR OFFICE USE ONLY PROJECT OFF	1055				
SUPPORT METHOD (Check one) TASK NO.						
AGENCY STAFF (Intramural)		L. Harmon ORGANIZATION				
X NEGOTIATED CONTRACT						
RESEARCH GRANT	IERL-	RTP / EPA	,			
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19300 V DGR6	RRENTFIT	i .	DATE.			

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12/76

Nov. 75 (Est.)

U.S. ENVIRONMEN	AGENCY		Form Approved OMB No. 158-R0081				
NOTICE OF R	ESEARCH PROJ	ECT	PROJECT NO. (Do not use this space) SSIE				
PREPARED FOR THE SMITHSONI	AN SCIENCE INFOR	MATION EXCHANGE	^{EPA} 77AAU				
	Demonstrat	ion of Nonwoven Dou	ble Mat Filte	ers for Control			
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED Principal Investigator: Other Professional Personnel Eugene E. Grassel Robert E. Frey - Vin Ronald E. Sundbert Romand E	Michael A. Michael A. onnel: Sr. Research STITUTION C. M. 94 Street a 55440 Discrives, (2) Approaitigators who request is work is to Couble Mat Cole emission w by analysi atrol of fine p	Shackleton - Sr. Project Chemist Corporate Development Ma ch, (3) Current Plans and/or Progress of work in progress are exchange such information. Your summary is demonstrate the feast-filters, "as an effect s. s and testing of protoparticle emissions. In	ect Engineer ent & Technomager, Torit ess (200 words or leed with government alis to be used for the sibility of a live and economy types that the Both the tech	ology, Torit Div. Div. ss. Omit confidential data), and private agencies sup- se purposes. new filtration nomic technique he new concept			
	economic limitations to commercial use will be identified. This program will be a 24-month effort.						
Reference Contract	No. 68-02-	1878.					
IDENTIFY PROFESSIONAL SCHOOL INVO dental, etc.)	DLVED (Medical,	signature of principal inv		17 July 1975			
	FO	R OFFICE USE ONLY					
SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER D. C. Drehme	1				

\$57,500

NEGOTIATED CONTRACT

75

RESEARCH GRANT

FUNDS OBLIGATED F.Y.

5

no. of future years tentatively assured beyond current f.y.

Unknown

RESPONSIBLE ORGANIZATION

IERL-RTP, UPID, PTB/EPA

STARTING DATE

1 July 1975

estimated completion DATE 3.0 June 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE TITLE OF PROJECT

Wind Tunnel Evaluation of Particle Sizing Instruments

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

Dr. Forest Mixon

NAME AND ADDRESS OF APPLICANT INSTITUTION

Research Triangle Institute

Post Office Box 12194

Research Triangle Park, N.C. 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.

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:

- 1. Environmental Systems Corp., PILLS IV
- 2. GCA Corp., Beta Impactor
- 3. Brink Impactor
- 4. Andersen Impactor

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:

- 1. Developing the test matrix.
- 2. Coordinating the testing with the operating contractor for the wind tunnel.
- 3. Ensuring that the instruments are properly operated.
- 4. Obtaining test particulate.
- 5. Conducting the tests.
- 6. Analysis of the data.
- 7. Report of the results.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNAT	ATURE OF PRINCIPAL INVESTIGATOR DATE			
			FO	R OFFIC	E USE ONLY		
SUPPORT METHOD (Check one)			TASK NO.	PROJECT OFFICER			
L_	AGENCY STAFF (Intramural)		W.B. Kuykendal				
X NEGOTIATED CONTRACT		5	5 RESPONSI		IERL-RTP, IPD, PMB / EPA		
	RESEARCH GRANT			111(11 1(11) 112)			,
\$500 K Base 75			NT F.Y.	ELY	starting date 6/9/75	ESTIMATED COMPLETION DATE 10/15/75	

EPA Form 5760-1 (7-72)

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved
	OMB No. 158-R0081
NOTICE OF RECENDED PROJECT	PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAU
TITLE OF PROJECT	
Control of Fine Particle Emissions	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	
Dr. D. H. Archer, Manager, Chemical Engineering	Research
Dr. B. W. Lancaster, Senior Engineer, Chemical I	ingineering Research
Dr. D. F. Ciliberti, Senior Engineer, Chemical I	Engineering Research
NAME AND ADDRESS OF APPLICANT INSTITUTION	
Westinghouse Research Laboratories	
Beulah Rd.	
Pittsburgh, Pa. 15235	
	(200
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progress In the Smithsonian Science Information Exchange, summaries of work in progress are exchange porting research and are forwarded to investigators who request such information. Your summary is	d with government and private agencies sup-
The Projection to do	nomethate on a small
The Environmental Protection Agency seeks to der scale, the feasibility of new concepts for the	
emissions.	control of time patricle
Horizons, Inc. has developed a unieque porous ce	eramic membrane with con-
trolled pore size and superior mechanical proper	
available information on this material made by	
Corporation shows that it has the potential for	
efficiency dust collection filter. While the ma	
of potential application, it is uniquely suitable	
control in high temperature, high pressure proce	
strength and chemical inertness are particularly	
quence, it may find widespread acceptance in coa	
now under development - coal gasification and fl	
are of particular interest.	
•	·
The Westinghouse Electric Corporation in a coope	
Horizons, Inc. is developing and testing ceramic	
	e program is directed 🗼 🖰
primarily toward particulate control in coal gas	
cycle power plants - an area in which there is w	irgent need for adequate
particle collection equipment.	
	$\Phi = \Phi e^{-i\omega t}$

IDENTIFY PROFESSIONAL SCHOOL INVO	David H. Archer 18 July		DATE		
NA			18 July 1975		
	FOR	OFFICE USE ON	LY		
SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT		PROJEC	T OFFICER		
		D. C	D. C. Drehmel		
		RESPONSIBLE ORGANIZATION IERL-RTP / EPA			
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\$181,363 75			6/30/75	6/30/77	

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 77AAU
TITLE OF PROJECT	

Fine Particle Scrubbing by High Gradient Magnetic Separation (HGMS)

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

Dr. F. O. Mixon, Manager Process Engineering Department

NAME AND ADDRESS OF APPLICANT INSTITUTION

Research Triangle Institute Research Triangle Park, N.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.

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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNAT	SIGNATURE OF PRINCIPAL INVESTIGATOR		DATE		
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	SUPPORT METHOD (Check one)			TASK NO.		PROJECT OFFICER		
	AGENCY STAFF	(Intramu	ral)			D.C. I		
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\$111,100 75 NO. OF FUTURE YEARS TASSURED BEYOND CURRING TO THE TENTE OF THE TENTE O			NT F.Y.	ELY	STARTING DATE 1 July 1975	estimated completion 30 June 1977		

U.S. ENVIRONMEN	ITAL PROTECTION AGENCY		E Company	orm Approved 3 No. 158-R0081
				o not use this space)
NOTICE OF F	RESEARCH PROJECT		· · · · · · · · · · · · · · · · · · ·	o not use this apace)
NOTICE OF I	CESEARCH FROSECT		SSIE EPA	
PREPARED FOR THE SMITHSON	IAN SCIENCE INFORMATION	EXCHANGE	77AA	Ŭ
TITLE OF PROJECT Mobile Bed Flux Force/Cond	lensation Scrubber	for Colle	ection of Fine Par	ticles
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED		L INVESTIGA	TORS OR PROJECT DIRECT	ORS AND ALL OTHER
INTERIM - final e	expected Oct. '75			
NAME AND ADDRESS OF APPLICANT IN	NSTITUTION			
SUMMARY OF PROPOSED WORK - (1) O In the Smithsonian Science Information porting research and are forwarded to inve	Exchange, summaries of work	in progress are	e exchanged with government	and private agencies sup-
A new class of scrul advantage of diffusiopho				
is being developed under of FF/C scrubbing. Recen	EPA contracts. Pr	evious st	tudies have proven	the feasibility
that a mobile bed scrubbe				
scrubbers are commonly us				
if such scrubbers can be				
collection of SO_x and fin				
correction of box and fin	no particular and a	8	,	J
The purpose of this	study is to evalua	te mobile	e bed scrubbers fo	r use as flux
force/condensation scrub	bing devices and to	develop	mathematical mode	ls and design
equations for such scrub	bers. This will be	accomp1:	ished by conductin	g theoretical
and small pilot plant st	udies of mobile bed	flux for	rce/condensation s	crubbers.
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dental, etc.)	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		on al milestication	DATE
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\$500 K Energy

U.S. ENVIRONMEN	TAL PROTECTION A	GENCY		orm Approved 3 No. 158-R0081
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NOTICE OF R	ESEARCH PROJ	ECT	SSIE	use and space)
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PREPARED FOR THE SMITHSONI			77AAU	
TITLE OF PROJECT Test & Ex	valuation P	rogram for Sele	ection, Test	ing, & Evalua-
tion of Fine Particu GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF PI	1 Devices & Moc RINCIPAL INVESTIGATORS	OR PROJECT DIRECT	f IERL Aerodynani ors and all other mber (Wind Tunnel)
Mr. F. E. Moreno, Eng Program/ Mr. J. J. Ro Mr. D. R. Blann; Lead Manager, Advanced Pro	eese, Engin der, System	eering Dept.;	Senior Proje	ct Engineer /
NAME AND ADDRESS OF APPLICANT IN				
Acurex Corporation /		Division		
485 Clyde Avenue				
Mountain View, Calif	ornia 94042			
SUMMARY OF PROPOSED WORK - (1) Of In the Smithsonian Science Information porting research and are forwarded to inves	ojectives, (2) Approac Exchange, summaries	h, (3) Current Plans and/or P of work in progress are exch	anged with government	and private agencies sup-
Objectives: Design,	fabricate.	install, perf	orm demonstr	ation tests.
and provide a rese	-			
evaluation facility		-		-
Industrial Environ				
Approach: The exist 2500 cfm humidity, Pneumatic dust tra stalled to treat pare evaluated. Ap included for prope Current Plans: A pr viewed before a fi Concurrently, the determination of a for use with this	temperatur nsport and articulate propriate i r system co eliminary s nal design research ar ppropriate	se, and pressure slurry handlin collected by wo nstrumentation ontrol and monity stem design we is generated for development	e controlled g equipment hatever wet and equipment toring. ill be generor construct program will	test leg. will be in- and dry devices int will be ated and re- ion purposes. begin with a
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N.A.				July 16, 1975
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FUNDS OBLIGATED F.Y.

75

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

6/30/75

ESTIMATED COMPLETION DATE 8/30/76

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	77AAZ
TITLE OF DROUGGE	

Shawnee Lime/Limestone Scrubbing Advanced Test Program GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER

Air Quality Group of the Process Technology Department

G.H. Dyer - Dept. Mgr.

M. Epstein - Project Mgr.

S. Wang - Project Eng.

R.M. Sherwin - Group Mgr. D.A. Burbank - Site Mgr.

C.C. Leivo - Asst. Site

NAME AND ADDRESS OF APPLICANT INSTITUTION

PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Bechtel Corporation - Scientific Development Operations

Mgr.

P.O. Box 3965

San Francisco, California 94119

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.

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 SO2 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.

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.

The process improvement objectives of the current program are to improve (1) alkali utilization, (2) SO₂ 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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)				signature of principal investigator s/Michael Epstein		9-17-75		
N/A								
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SUPPORT METHOD (Check one) TASK NO.		TASK NO.	PROJECT OF					
	AGENCY STAFF	AFF (Intramural)			John E. Williams			
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	e of PROJECT Studies of S	302 We	et Scru	bbing Utiliz	ing EP/	A Researc	ch Mode	al Scrubber	
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	E AND ADDRESS								
	Monsanto R		_	э.					
	1515 Nichol Davton, Oh								
SUMI	MARY OF PROPOS	SED WORK	(- (1) Ob	piectives, (2) Approa	ch. (3) Cur	rent Plans and	d/or Progress	s (200 words or le	ss. Omit confidential data).
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res									aximum flexibility
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					_				ditions for applica-
				h-sulfur U.S	_		-	-	
Ot	oiectives:	(1) to	provid	de in-house e	experin	nental su	pport fo	or EPA's Sh	awnee Test
									ber feeds for non-
re	generable s	ystems	s; (3) d	define operat	ing va	riables a	nd proc	ess chemis	try affecting relia-
				tion of limest		_			
	-	_	="						nced concepts and
pro	ocess impro	vemen	its for	further study	y in lar	ger proto	otype un	its.	
						_			basis. Each set-
_			-	_		-			an be operated with
	-				varyin	g inlet S	O ₂ cond	centrations	. Hold tank and
	wer designs		u - uu	••					
				<u>s</u> : Principal					
									oward the objec-
									k designs have
sh	own that hi	gh util	izatio	n of limestor	ne can	be obtain	ned con	currently w	ith high SO2
re	moval effici	lency.	Work	in this area	is cor	ntinuing i	toward t	he objectiv	ve of a system
th	at yields ru	lly-ox	idizea	waste sludg	e. se	veral me	thods or	carrying o	out the oxidation
Sto	ap are being	j inves	tigate	d. Future w	Ork WI	ll evaiua	te aire	rent types	of lime/limestone
IDE	NTIFY PROFESSIO	metno	ds of	CONTROLLING S	TO1CD10	ometry ar	10 Maxii	NIZING BOY	removal efficiency
	tal, etc.)		002 ///	, (mont)					May 7, 1975
	N/A May 7, 1975								
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	AGENCY STAFF			TASK NO.		PROJECT OF Robert	H. Bor	awardt	
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	RESEARCH GRA			1		IERL-F	RTP, N.	C. 27711	/ EPA
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NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do r.	ot use this space)
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAZ	
TITLE OF PROJECT Louisville Gas and Electric Full-S		•
and Waste Disposal Program GIVE NAMES, DEPARTMENTS, AND OFFICAL TITLES OF PRINCIPAL INVESTIGATORS O PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	R PROJECT DIRECTOR	RS AND ALL OTHER
Interim - final expected M	1ar. 76	
NAME AND ADDRESS OF APPLICANT INSTITUTION		*
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Pr In the Smithsonian Science Information Exchange, summaries of work in progress are excha porting research and are forwarded to investigators who request such information. Your summa	inged with government an iry is to be used for thes	d private agencies sup- e purposes.
Recent results from small- and large-scale EPA limestone scrubbing (for SO, removal from power	pilot plant r plant flue	tests of lime/ gas) have
shown that under certain conditions lime/limest	tone systems	can operate
unsaturated with respect to dissolved gypsum.		
also been reported in tests of the full-scale of system at Louisville Gas and Electric's Paddy's		
is perhaps the most successful of its type in		
cause of the unsaturated (in gypsum) operation,	, the physica	al design of
the system, or a combination of the unsaturated design.	d operation a	and system
Louisville Gas and Electric (LG&E) has expresse	ed a willings	ness to make
their system available to EPA for a series of		
understanding of the system and to broaden the		
system design and operation to other power plan	nt installati	lons.
The purpose of this program is to: (a) Characte		
reliability, and chemistry of the LG&E lime sca at Paddy's Run Unit No. 6, (b) Perform a series		
increase the understanding of the LG&E system a		
bility to other power plant SO, scrubbing appl:	ications. Th	nese tests will
include use of commercial lime, variation in bo	oiler load, a	addition of
chloride (and possibly magnesium), and variation		
(c) Evaluate scrubber waste disposal operations field tests of several treatment/disposal methods.		
methods not currently offered commercially.	ous, with emp	Juasis ou
		•
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	INVESTIGATOR	DATE
FOR OFFICE USE ONLY SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICE	-	
	W. Jones	
X NEGOTIATED CONTRACT A-4	SANIZATION	

\$950 K

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

IERL-RTP / EPA

STARTING DATE

Feb. 76(Est.)

ESTIMATED COMPLETION

U.S. ENVIRONMENT	AL PROTECTION AGE	ENCY		orm Approved B No. 158-R0081
NOTICE OF RE	SEARCH PROJEC	T.		o not use this space)
PREPARED FOR THE SMITHSONIA	N SCIENCE INFORMA	TION EXCHANGE	EPA 77AAZ	
TITLE OF PROJECT Engineering	and Analytical	Support for t	he Louisville G	as & Electric
Scrubber Testing Program GIVE NAMES, DEPARTMENTS, AND OFFIC PROFESSIONAL PERSONNEL ENGAGED I	CIAL TITLES OF PRIN	ICIPAL INVESTIGATOR	RS OR PROJECT DIRECT	ORS AND ALL OTHER
NAME AND ADDRESS OF APPLICANT INS	TITUTION			
Radian Corporation P. O. Box 9948				
Austin. Texas 78766 SUMMARY OF PROPOSED WORK - (1) Obj In the Smithsonian Science Information porting research and are forwarded to invest	Exchange, summaries o	f work in progress are ex	changed with government	and private agencies sup-
scrubbing system installed engineering and analytical the LG&E system and to broapplications. These tests load, addition of chloride operation. Finally, the schemical reactions taking these reactions to basic of so that performance of the	support neces paden its appli will include (and possibly study will cha place in vari design and ope	ssary to succes icability to ot use of commercy magnesium), a racterize, using the system streeting paramete	sfully perform ther power plant tial lime, varia and variation in the test data teams and vessels ters of lime scru	a series of SO, scrubbing tion in boiler hold tank important, will relate
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IDENTIFY PROFESSIONAL SCHOOL INVO	DLVED (Medical, SI	GNATURE OF PRINCIP	AL INVESTIGATOR	DATE
dental, etc.)		J. L. Phillips	3	
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\$187,000

FUNDS OBLIGATED F.Y.

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

STARTING DATE

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ESTIMATED COMPLETION DATE

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U.S. ENVIRONME	NTAL PROTECTION AGEN	CY		Form Approved DMB No. 158-R0081
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NOTICE OF I	RESEARCH PROJECT		SSIE	
PREPARED FOR THE SMITHSON	IAN SCIENCE INFORMATION	N EXCHANGE		AZ-05 . BA-08
TITLE OF PROJECT Louisvil	le Gas and Ele	ectric Fu		
and Waste Disposal Pr GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	CAL TITLES OF PRINCI			
,	Interim - fina	al expect	ed Mar. 76	
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In the Smithsonian Science Information porting research and are forwarded to inverse the cent results from a limestone scrubbing (shown that under cert unsaturated with respalso been reported in system at Louisville is perhaps the most acause of the unsaturated is perhaps the most acause of the unsaturated with respansion. Louisville Gas and Eltheir system available understanding of the system design and operated in the purpose of this preliability, and chemat Paddy's Run Unit increase the understability to other power include use of commercial controls (and possible (c) Evaluate scrubber field tests of several methods not currently	Exchange, summaries of we stigators who request such is mall— and large for SO removation conditions bect to dissolve tests of the Gas and Electric (LG&E) test of the condition of the lectric (LG&E) test of the EPA for a system and to eration to other conditions of the lectric (b) Period of the lectric (c) Period of the lectric	wk in progress are afformation. Your ge-scale at from post lime/lived gypsu full-scaric's Padits type at the unsatur has expraise unsatur has expraise broaden ar power (a) Char G&E lime form a secubling a ciation i and varial operatisposal m	exchanged with government summary is to be used for EPA pilot plat ower plant flus mestone system. This oper le carbide lidy's Run Station the U.S., ion, the physicated operation essed a willing of tests to it the applicability plant install acterize the scrubbing syries of scruber and to bropplications. In boiler load ation in hold ions through	nt and private agencies sup- these purposes. Int tests of lime/ ue gas) have ms can operate ating mode has me scrubbing ion. This system possibly be- ical design of n and system In and
DENTIFY PROFESSIONAL SCHOOL INVidental, etc.)	OLVED (Medical, SIGNA	TURE OF PRINC	IPAL INVESTIGATOR	DATE
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U.S. ENVIRONMENTAL PROTECTION		OMB	rm Approved No. 158-R0081
NOTICE OF RESEARCH PROJ	ECT	PROJECT NO. (Do SSIE	not use this space)
PREPARED FOR THE SMITHSONIAN SCIENCE INFOR		^{EPA} 77 AA	Z
TITLE OF PROJECT Experimental and Theor in Lime/Limestone SO ₂ GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF P	etical Studies of Soli Scrubbers	d Solution Fo	ormation
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF P PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	RINCIPAL INVESTIGATORS OR F	ROJECT DIRECTO	RS AND ALL OTHER
R.M. Wells, Program Manager			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
Radian Corp. 8500 Shoal Creek Blvd.			
Austin, Texas 78766			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approac In the Smithsonian Science Information Exchange, summarie porting research and are forwarded to investigators who request	s of work in progress are exchanged such information. Your summary is	d with government as s to be used for thes	nd private agencies sup- e purposes.
Pilot plant studies conducted b	_	-	
that both lime and limestone scrubb	,		
dissolved calcium sulfate, while ma			
formation of a "solid solution" of solid identified as the mechanism respons	_	=:	
and thus is a critical factor for achi			
formation cannot occur with unsatur			
having potential importance to the r			
or limestone feeds. Several variable			
identified in the pilot plant studies			
the concentrations of chloride and r			
quantitative correlation of the effect			
the conditions necessary to achieve		on tu any giv	en situation.
This task is intended to assist in m			
The overall objectives of this t	ask are: (a) to quant	itatively dei nginal varial	ine, by carefully
controlled laboratory measurement, influence solid solution formation,	and (b) develop the th	ncipai valiai neoretical fr	amework by which
these variables can be related to th	e operation of scrubb	ers in an uns	saturated mode.
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	\$50 K	75		Unknow	n		May 1975	January 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Antroved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT SSIE FPA PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77AAZ.

TITLE OF PROJECT

Double Alkali Pilot/Prototype Test

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. 68-02-1071

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.

In the laboratory, future work involves continued development activities on an effective limestone regeneration system in the concentrated mode. Efforts will also be devoted to characterizing the chemical and physical properties of the wastes generated in the various dual alkali modes as well as chemical fixation techniques for dual alkali solids.

The continuing pilot plant program will involve development work on the concentrated limestone mode pending completion of laboratory development efforts. In addition, three long-term, five-week (13 shifts per week) runs are planned for the most promising dual alkali modes developed in the program. These runs will probably include operations in the concentrated lime mode (CSTR), the dilute lime mode (with oxidation) and a third mode to be selected.

The one-year test program will be conducted on the 20 megawatt prototype dual alkali system supplied by CEA/ADL to Gulf Power/Southern Services, Plant Scholz. The test program will be broken into short- and longer-term test phases involving a range of operating rates and sulfur content of the coal. The main focus of the data collection and analysis will be the characterization of the process operation in terms of:

- scrubber efficiency;
- oxidation rates;
- sulfate regeneration;
- solids properties;
- sodium losses; and
- lime and other chemicals utilization.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL INVESTIGATOR dental, etc.) N.A. 17 Sept. 1975 FOR OFFICE USE ONLY SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICER Norman Kaplan AGENCY STAFF (Intramural) A-7 X NEGOTIATED CONTRACT RESPONSIBLE ORGANIZATION IERL-RTP, UIPD, EETB/EPA RESEARCH GRANT ESTIMATED COMPLETION FUNDS OBLIGATED | F.Y. NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. STARTING DATE 75 \$488,800 Unknown 7 May 1973 June 1976

	U.S. ENVIRONM	ENTAL PROTECTION	GENCY	F	orm Approved	
					3 No. 158-R0081	
	NOTICE OF	RESEARCH PROJ	FCT	1	o not use this space)	
				SSIE EPA		
	PREPARED FOR THE SMITHS	DNIAN SCIENCE INFOR	MATION EXCHANGE	77AAZ		
	E OF PROJECT					
	11-Scale Double-Alkal					
PRO	NAMES, DEPARTMENTS, AND C FESSIONAL PERSONNEL ENGAG	ED IN THE PROJECT.	RINCIPAL INVESTIGAT	ORS OR PROJECT DIRECT	ORS AND ALL OTHER	
	INTERIM - Final e	expected June 7	5			
		-				
NAM	E AND ADDRESS OF APPLICANT	INSTITUTION				
					į	
SUM	MARY OF PROPOSED WORK - (1	Objectives, (2) Approac	h. (3) Current Plans and	/or Programs (200 words or to	one Onit postidential data	
1	In the Smithsonian Science Informating research and are forwarded to in	ion Exchange, summarie:	of work in progress are	exchanged with government	and private agencies sup-	
	As part of the dem	monstration pro	gram carried ou	ıt under provisions	of the Clean	
Ai	r Act Amendments of 1					
	s desulfurization (FC					
а	full-scale, multi-tra	ain, commercial	installation.	The recently app	roved program	
	or accelerated energy-					
	or double-alkali FGD I					
	stem be capable of hi					
	ceptable wastes. The					
	f a full-scale double-	-aikaii process	naving signifi	cant advantages o	ver currencty	
a۱	vailable technology.					
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ine			SIGNATURE OF BRING	TO ALLINIVESTICATOR	DATE	
den	NTIFY PROFESSIONAL SCHOOL (tal, etc.)	IN VOLVEU (Medical,	SIGNATURE OF PRINC	WE WASSIIGHTON		
		,				
		FOI	OFFICE USE ONLY			
	SUPPORT METHOD (Check one)	TASK NO.	PROJECT OF			
	AGENCY STAFF (Intramural)			Norman Kaplan RESPONSIBLE ORGANIZATION		
x	NEGOTIATED CONTRACT	A-8				
	RESEARCH GRANT		IERL-R		ECTIMATED COURT STICE	
	IDS OBLIGATED F.Y. NO. C	OF FUTURE YEARS TE	NTATIVELY T F.Y.	STARTING DATE	DATE 170	

\$4392 K

May 76 (Est.)

1/79

U.S. ENVIRONME	NTAL PROTECTION	AGENCY		orm Approved 3 No. 158-R0081
			PROJECT NO. (D	o not use this space)
NOTICE OF	RESEARCH PRO	JECT	SSIE EPA	
PREPARED FOR THE SMITHSON	IIAN SCIENCE INFO	RMATION EXCHANGE	77AAZ	
TITLE OF PROJECT	7.7	TT42124 D-21		
Double Alkali Test Proc GIVE NAMES, DEPARTMENTS, AND OF PROFESSIONAL PERSONNEL ENGAGE	FICIAL TITLES OF	PRINCIPAL INVESTIGATORS	OR PROJECT DIRECT	ORS AND ALL OTHER
Project Director - Dr. Contract No. 68-02-13			•	
NAME AND ADDRESS OF APPLICANT II Arthur D. Little, Inc. 20 Acorn Park			(
Cambridge, Massachus				
SUMMARY OF PROPOSED WORK - (1) C In the Smithsonian Science Information porting research and are forwarded to inve	n Exchange, summari	es of work in progress are excha	inged with government	and private agencies sup-
Objective and Scope of This project will of system designed by Gesystem at the Chevrole ing and participating intion on SO _X removal can characteristics, loss of utilization of other chebalances on the overall	haracterize t neral Motors t/Cleveland a test progr pability, pro f soluble man micals. The	plant. This task wards am at the GM facilides reliability, subterial from the system test program will in	on their industill be accomplify which will lifate control, em, and lime ynclude conduc	strial boiler ished by design- provide informa- waste product vield and
IDENTIFY PROFESSIONAL SCHOOL INV dental, etc.)	OLVED (Medical,	SIGNATURE OF PRINCIPAL	INVESTIGATOR	DATE .
N/A				17 Sept. 1975
	Er	DR OFFICE USE ONLY		1
		// U. I ICE USE URE I		
SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER	₹	
SUPPORT METHOD (Check one) AGENCY STAFF (Intramural)	T			

FUNDS OBLIGATED

\$26,600

RESEARCH GRANT

F.Y.

75

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

Unknown

IERL-RTP, UIPD, EETB

STARTING DATE

Jan. 1974

ESTIMATED COMPLETION

Oct. 1976

U.S. ENVIRONMENT	TAL PROTECTION	AGENCY		orm Approved 3 No. 158•R0081
NOTICE OF R	ESEARCH PROJ	ECT	PROJECT NO. (De	o not use this space)
PREPARED FOR THE SMITHSONI			77AAZ	
TITLE OF PROJECT Revision a	and Issuance aluation Pan	of Final Report	of Sulfur Oxide T	hrowaway
GIVE NAMES, DEPARTMENTS, AND OFF	ICIAL TITLES OF P	RINCIPAL INVESTIGATO	RS OR PROJECT DIRECT	ORS AND ALL OTHER
R. Murray Wells, Proje	ct Manager			
NAME AND ADDRESS OF APPLICANT IN	STITUTION			
Radian Corporation * P.O. Box 9948				
Austin, Texas 78766				ž.
SUMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information porting research and are forwarded to inves	Exchange, summarie	s of work in progress are e	xchanged with government	and private agencies sup-
Background				
EPA prepared the in	vitial draft of	Sulfur Ovide Th	rowaway Sludgo	Fualuation Panol
(SOTSEP) Final Report in				
contained in the report,	_	•	1	
tion should be reviewed	-		-	
Corporation provided co				
draft of the report. In				_
Volume I (Executive Sun		_	and the second s	the second secon
SOTSEP Final Report.	iningry) dila v	oranic ir (recimir	our Diboubbion b	appromone, or the
borber imar koport.				
Scope of Work				
Radian Corporation	shall review	v and revise both	volumes of the	SOTSEP Final
Report, to insure that:				
possible and that (b) th	e two volume	es of the report a	re consistent. I	In updating the
information in the repor	t Radian sha	ll rely heavily or	readily availab	le information
from EPA (NERC-RTP) ar				
Radian Corporation	chall also r	evice the report	according to EPA	direction based
on an EPA editorial revi			4000:4:9 10 =	
e on an Era editorial rovi	CW 01 th0 101			
	•		*	* * * <u></u>
IDENTIFY PROFESSIONAL SCHOOL INV	OLVED (Medical,	SIGNATURE OF PRINCIP	AL INVESTIGATOR	DATE
dental, etc.)		R. Murray W	/ells	
		DOSEIGE USE CON Y	·	
SUPPORT METHOD (C)	TASK NO.	R OFFICE USE ONLY PROJECT OFF	ICER	
SUPPORT METHOD (Check one) AGENCY STAFF (Intramural)	1 73%		V. Jones	
X NEGOTIATED CONTRACT	1	RESPONSIBLE	ORGANIZATION	
PESEARCH CRANT	A-11	IERL-RT	P, UIPD, EETB/E	SPA

X NEGOTIATED CONTRACT RESEARCH GRANT

75

FUNDS OBLIGATED F.Y. \$21,300

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

STARTING DATE
Jan. 75

ESTIMATED COMPLETION DATE April 75

	U	.s. ENVIRONMEN	TAL PROTECTION	AGENCY			orm Approved 3 No. 158-R0081
						PROJECT NO. (D	o not use this space)
		NOTICE OF R	ESEARCH PRO.	JECT		SSIE	
	PREPARED FO		AN SCIENCE INFO			77 <i>I</i>	
TIT	LE OF PROJECT		of the Cher ired Boiler	nico-B	asic Magnes	ia Slurry SO2	Recovery Process
	George R.	ONNEL ENGAGED	in the project. oject Directo		L INVESTIGATORS (DR PROJECT DIRECT	ORS AND ALL OTHER
		per, Proces					
NAM		ir Pollution	STITUTION Control Com	pany			. 1
	One Penn F						
ſ	MARY OF PROPOS In the Smithsonian S	cience Information	ojectives, (2) Approa Exchange, summarie	s of work	in progress are excha		ess. Omit confidential data), and private agencies súp- se purposes.
	Objective:		tion of the mation to a co	_	_	recovery proc	ess for flue gas
	Approach:	scrubber a on the 195 Company'	nd a second MW coal fin s Dickerson	stage red No Station	F.G.D. vent . 3 boiler at n. Magnesia	uri absorber h Potomac Elect regeneration	articulate control as been installed ric Power is accomplished sulfuric acid.
	Progress:	have been FGD syste application unit is pretthe power	completed s m. Previous n are being r sently opera plant has be	uccess ly dev evised ting ar en exh	sfully with 14 eloped predic to include c nd will contir austed. Bas	esting phase of 168 hours of op ction equation oal fired infor nue until MgO ed upon a con e for another to	peration of the s for oil fired mation. The remaining at sumption rate
	NTIFY PROFESSION	NAL SCHOOL INV	DLVED (Medical,	SIGNATU	RE OF PRINCIPAL	INVESTIGATOR (DATE
dent	al, etc.) N C	one					17 Sept. 1975
			FO	R OFFICE	USE ONLY		<u> </u>
	SUPPORT METHOD	(Check one)	TASK NO.		PROJECT OFFICE		
	AGENCY STAFF	Intramutal)			C.J. Chat	-	
х	NEGOTIATED CON		b.1		RESPONSIBLE ORG		f
	RESEARCH GRAN	T			IERL-RTP/	EPA	

\$466,371

FUNDS OBLIGATED F.Y.

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

STARTING DATE

21 Feb. 1975

DATE Dec. 1975

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u.s	5. ENVIRONMENT	AL PROTECTION A	AGENCY			rm Approved No. 158-R0081
<u> </u>	NOTICE OF R	ESEARCH PROJ	ECT		SSIE	not use this space)
N	THE SMITHSONIA	AN SCIENCE INFOR	MATION E	XCHANGE	77A	AZ
TITLE OF PROJECT MgSO ₃ Hyc	drate Forma	tion Mechan	ism			
GIVE NAMES, DEPARTM PROFESSIONAL PERSON Dr. Phillip	NEL ENGAGED	CIAL TITLES OF PIN THE PROJECT. TINCIPAL SCIES		INVESTIGATORS (PR PROJECT DIRECTO	ORS AND ALL OTHER
NAME AND ADDRESS OF	APPLICANT IN	STITUTION				
Radian Cor	_					
8500 Shoal		i.				
Austin, Ter SUMMARY OF PROPOSE In the Smithsonian Sc porting research and are	D WORK - (1) Ob ience Information	Exchange, summarie	s of work i	n progress are exch	anged with government a	ss. Omit confidential data). and private agencies sup- se purposes.
Objective:	species of two specian advant produce of Thus it is mechanism	f MgSO ₃ (tri es have vast age to be ab ne of the two the objectiv m of the two	- and half different diffe	nexa-) have erent handlinesign a scru hus design t evelop an un es and to rec	been formed. ng characterist bbing system t	cics, it would be to preferentially stem accordingly. the formation or operating
Approach:	determine temperatu temperatu	: (a) solubil re, (b) the in	lity pro nfluenc ise cha	ducts of the e of solution inge, and (c)	two hydrates n composition the influence	experimentally as a function of on the transition of composition
Progress:	Progress: The literature survey has been completed. Construction of experimenta equipment is on schedule and should be completed by the end of September.					on of experimental the end of
IDENTIFY PROFESSION	AL SCHOOL INV	OLVED (Medical,	SIGNATU	RE OF PRINCIPAL	INVESTIGATOR	DATE
dental, etc.)		,				17 Sept. 1975
		FO	ROFFICE	USE ONLY		
SUPPORT METHOD		TASK NO.		PROJECT OFFICE C.J. Cha		
AGENCY STAFF (I		B. 1		RESPONSIBLE OR		
X NEGOTIATED CON		+		IERL-RTP	/ EPA	

82,500

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

STARTING DATE

7/75

ESTIMATED COMPLETION

2/76

	U	J.S. ENV	RONME	NTAL PROTECTION	AGENCY			Form Approved B No. 158-R0081
		NOTIC	CE OF I	RESEARCH PRO.	JECT		PROJECT NO. <i>(E</i>	Do not use this space)
	PREPARED FOR	RTHES	MITHSON	IAN SCIENCE INFO	RMATION EXCHANG		77AAZ	
TIT	LE OF PROJECT	of D		na Cultur fun	- M-CO	L		
GIV	E NAMES, DEPARTI	MENTS,	AND OF	ng Sulfur from	PRINCIPAL INVEST	IGATORS OR PI	ROJECT DIRECT	TORS AND ALL OTHER
PRO	FESSIONAL PERSO	NNEL	ENGAGED	IN THE PROJECT.				
	Dr. Phillip	S. L	owell	, Principal S	cientist			
NAN	ME AND ADDRESS O			NSTITUTION				
	Radian Cor			•				
	8500 Shoal			d.				
SIIM	Austin, Tex							
	In the Smithsonian S	cience I	nformation	bjectives, (2) Approa n Exchange, summarie stigators who reques	s of work in progres:	s are exchanged	with government	less. Omit confidential data). and private agencies sup- nese purposes.
	Objective:	EPA	has s	upported two	Mag-Ox scr	rubbing de	monstratio	n; in each case
					-	-		the applicability
		of t	he pro	cess is the d	lirect reducti	on/decom	position of	f MgSO ₃ to
		eler	nental	sulfur and N	MgO. The st	udy of the	feasibility	y of this process
		opti	on is	the objective	e of this task	: •		
	Approach:	The	contr	actor is perfo	orming a liter	ature surv	ey on the	following topics:
				-	_		_	and kinetic data.
			_	-				possible process
		arra	ngeme	ents, and cal	culate heat a	and materi	al balance	s. Finally,
		kine	etic ca	alculations w	ill be perform	ned a n d re	commenda	tions made.
	Progress:	The	litera	ture survey a	and most of th	he equilib	rium calcu	lations have been
	11091055.							s arrangements.
				material bala				
				The final re				
IOF	NTIFY PROFESSION	IAL SCH	IOOL INV	OLVED (Medical	SIGNATURE OF PE	RINCIPAL INVE	STIGATOR	DATE
	al, etc.)	1/12 30/		o I v I b (med rear)			31132131	
				T	R OFFICE USE ONL			
	SUPPORT METHOD		<u>-</u> -	TASK NO.	*	r officer . Chatlynr	10	
	AGENCY STAFF (I			B-2	RESPONS	SIBLE ORGANIZ	ATION	
x	RESEARCH GRAN					L-RTP/EPA		1
FUN	<u> </u>	.Y.	NO. OF	FUTURE YEARS TE D BEYOND CURREN	NTATIVELY	STARTING	DATE	ESTIMATED COMPLETION
	A A A A A 7 7		אטטער	D BETOND CORRER	TI FALL	l a	11 1075	DATE 107C

75

STARTING DATE April 1975 ESTIMATED COMPLETION DATE NOV. 1975

U.S. ENVIRONMENTAL PROTECTION AGENCY	B	orm Approved No. 158-R0081
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Da	not use this space)
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXC	HANGE FPA 77AAZ	
TITLE OF PROJECT Test and Evaluation of the Northern Indiana Pub tion Plant	blic Service Co./Wellman	/Allied Demonstra-
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL IN PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	VESTIGATORS OR PROJECT DIRECTO	ORS AND ALL OTHER
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 In the Smithsonian Science Information Exchange, summaries of work in pr porting research and are forwarded to investigators who request such informati	ogress are exchanged with government a	and private agencies sup-
TRW, Inc. will furnish the necessary personnel,		
facilities and otherwise do all things necessar of the three major tasks described below:	ry for or incident to the	e periormance
1. Preparation of Demonstration Test Plan - The approval a Demonstration Test Plan based on the Sections 4.1, 4.2, 4.5 and 4.6 of the Work Plan for the NIPSCO/DAVY/ALLIED Demonstration Plant, Test Plan will include a thorough discussion of instrumentation, analytical methods, schedule, duction, and presentation. Installation and chewhich was initiated under Task 18 of Contract N preparation of the Demonstration Test Plan.	e preliminary plans contain Manula - Test and Evalua, dated 31 August 1973. It test parameters, sample manpower, costs, data coneckout of test measurements.	ained in ation Program The Demonstration ing methods, ollection, re- ents equipment,
2. Perform Acceptance Test - TRW Inc. will obt the one-year demonstration operation of the WEI procedures, methods, schedules, etc., will be i Acceptance Test Plan prepared during Task 16 to	LLMAN-LORD/ALLIED system in accordance with the a	at NIPSCO. The pproved
3. Perform One-Year Demonstration Test - TRW I during the one year demonstration operation of NIPSCO. The procedures, methods, schedules, et approved Demonstration Test Plan prepared durin will collect, reduce and evaluate demonstration serve as a final report for the WELLMAN-LORD De	the WELLMAN-LORD/ALLIED tc. will be in accordance ng Task I of this contract n data and prepare a rep	system at e with the ct. TRW Inc.
	OF PRINCIPAL INVESTIGATOR	DATE
N.A.		
FOR OFFICE USE	E ONLY	
(1100110)	OJECT OFFICER	
	Roger C. Christman	

\$500,000

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

IERL-RTP / EPA

STARTING DATE

3/03/75

ESTIMATED COMPLETION DATE 9/03/77

	U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081		
	NOTICE OF DESEABOURDO LEGE	PROJECT NO. (Do not use this space)		
	NOTICE OF RESEARCH PROJECT	SSIE EPA		
	OR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAZ		
TITLE OF PROJECT	Technical Support to the 1MW Pilot Investig	ation of Ammonia		
	Scrubbing/ABS Regeneration RETMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR ISONNEL ENGAGED IN THE PROJECT.	PROJECT DIRECTORS AND ALL OTHER		
Doug Va	n Osdell, Chemical Engineer			
	OF APPLICANT INSTITUTION			
	n Triangle Institute n Triangle Park, N.C. 27711			
1,00000101	i iliangle raik, iv. o. 27711			
In the Smithsonian	OSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Program Science Information Exchange, summaries of work in progress are exchange are forwarded to investigators who request such information. Your summary	ed with government and private agencies sup-		
1 MW pi	objective of this project is to provide technic lot investigation of ammonia scrubbing - ammon Colbert Station near Muscle Shoals, Alabama	nium bisulfate regeneration		
In a	chieving the technical objective, the contract	or will:		
(1)	Maintain current information on technical dev	elopments in the pilot study.		
(2)	Review and evaluate proposed designs, design changes, test programs and schedules, and to			
(3)	Recommend design, operational, and/or test operation/evaluation of the process.	options to improve the		
(4)	(4) Assist in defining the significance and potential impact of specific process problems.			
(5)	Report on a monthly basis all findings/recommender report summarizing the total program.	nendations; submit a final		

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)		SIGNATI	SIGNATURE OF PRINCIPAL INVESTIGATOR		DATE			
		N.A.	1					17 Sept. 1975
				FC	OR OFFICE	USE ONLY		
	SUPPORT METHO	D (Check	one)	TASK NO.		PROJECT OF	FFICER	
	AGENCY STAFF	(Intramus	al)			Wade	H. Ponder	
x	NEGOTIATED C	ONTRAC	Т] B-6		RESPONSIBLE ORGANIZATION		
	RESEARCH GRA	NT	•	 		IERL-F	RTP, UIPD/PTB/	EPA
FUN	\$59,200	F.Y.		FUTURE YEARS TE D BEYOND CURRE		LY	STARTING DATE 7/75	ESTIMATED COMPLETION 1/76

	U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
		PROJECT NO. (Do not use this space)
	NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FO	R THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA 77AAZ
TITLE OF PROJECT	Technologies and Equipment for Producti from Materials other than Natural Gas	on of Reductant Gases
	MENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS ONNEL ENGAGED IN THE PROJECT.	OR PROJECT DIRECTORS AND ALL OTHER
Doug His	song	
K.S. Mu	thy	
	of applicant institution Columbus Laboratories	
505 King		
_	s, OH 43201	
	SED WORK - (1) Objectives (2) Approach (3) Current Plans and/or	Progress (200 words or less. Omit confidential data)

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 involves an evaluation of the feasibility of using substances other than natural gas to accomplish the reduction of SO₂ 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.

The objectives of this project are:

- (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.
- (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.
- (3) To revise and improve earlier cost estimates for the alternate reductants based upon the results from the accomplishment of Objectives 1 and 2.

IDE deni	NTIFY PROFESSIONAL SCH (al, etc.)	OOL INVOLVED (Medical,	SIGNATURE OF PRINC	CIPAL INVESTIGATOR	DATE
	N.A.				Sept. 17, 1975
		FO	R OFFICE USE ONLY		
	SUPPORT METHOD (Check	one) TASK NO.	PROJECT OF		:
	AGENCY STAFF (Intramura	1)	Roger	Christman	·
х	NEGOTIATED CONTRACT	B-8	RESPONSIBL	E ORGANIZATION	
	RESEARCH GRANT		IERL-R	TP, UIPD, PTB/1	EPA
FUN	\$76,000 75	no. of future years to assured beyond curre Unknown		STARTING DATE 8/75	estimated completion date 3/76

EPA Form 5760-1 (7-72)

U.S. ENVIRONMENT	AL PROTECTION	AGENCY			orm Approved No. 158-R0081
				PROJECT NO. (Do	not use this space)
NOTICE OF RI	ESEARCH PRO	JECT		SSIE	
PREPARED FOR THE SMITHSONIA	AN SCIENCE INFO	RMATION I	EXCHANGE	FPA 77AAZ	
TITLE OF PROJECT					
Advanced Flue Gas Des GIVE NAMES, DEPARTMENTS, AND OFFI	ulfurizat:	ion De	monstration	1	250 445 411 07455
PROFESSIONAL PERSONNEL ENGAGED	N THE PROJECT.	PRINCIPAL	. INVESTIGATORS O	R PROJECT DIRECT	ORS AND ALL OTHER
I	nterim - 1	final	expected Ju	ine 76	
NAME AND ADDRESS OF APPLICANT INS	TITUTION		 		
SUMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information	jectives, (2) Approa	ach, (3) Cur	rent Plans and/or Pro	ogress (200 words or le	ss. Omit confidential data).
porting research and are forwarded to invest As part of the demons	tigators who reques	t such info	mation. Your summar	y is to be used for the	se purposes.
the Clean Air Act Ame					
tion of several flue					
that approximates a s	-		•	•	
mercial installation.					
EPA includes funds fo					
intended that the sys	tem produc	ce ele	mental sulf	ur as its p	rimary
product, be capable o reductant material ot	r high SU,	remo	val efficie	encies, and	utilize a
reductant material of	ner than i	natura	ı gas.		
The purpose of this e	ffort is t	to pro	vide for th	e demonstra	ition of an
advanced flue gas des					
over currently availa	ble techno	ology.	The syste	m to be pro	vided will be
capable of producing	elemental	sulfu	r, be capab	le of high	SO, removal
efficiencies, and uti	lize reduc	ctants	other than	natural ga	ıs.²
IDENTIFY PROFESSIONAL SCHOOL INVO	LVED (Medical,	SIGNATU	RE OF PRINCIPAL 1	NVESTIGATOR	DATE
dental, etc.)					
		<u> </u>		, 	
			USE ONLY		
SUPPORT METHOD (Check one)	TASK NO.		PROJECT OFFICER	'hwista-	
X NEGOTIATED CONTRACT	5 0	}	Roger C. C		
ZE MEGO HATED CONTRACT	B-9	1			

\$5785 K

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

IERL-RTP / EPA

STARTING DATE

May 76 (Est.)

ESTIMATED COMPLETION

·	U.S. ENVIRONMEN	TAL PROTECTION	AGENCY			Form Approved 1B No. 158-R0081
	NOTICE OF R	ESEARCH PROJ	ECT		PROJECT NO. (Do not use this space)
	PREPARED FOR THE SMITHSONI	AN SCIENCE INFOR	MATION	EXCHANGE	EPA 7 7A	AZ
	.E OF PROJECT ssessment of the Cat-C	x Demonstra	tion F	roject		
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	ohn A. Manning, Resea		t			
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NAM	E AND ADDRESS OF APPLICANT IN	STITUTION				· · · · · · · · · · · · · · · · · · ·
	OW Chemical					
F	reeport, Texas 77541					
1	MARY OF PROPOSED WORK - (1) Ob in the Smithsonian Science Information ing research and are forwarded to inves	Exchange, summarie	s of work	in progress are excha-	nged with governmen	t and private agencies sup-
r i C c r e i	The objective of thin stallation at Illinois Peregram of the FG of the Flow sheets, drawing initial materials of construction in this and construction in this and reviewed. Operational per with process supplier non-destructive test teck of the Forman of	D system to D system to D system to ngs, the designation and experience versimilar SO2, procedures are and process that are pairs so will be made it evisit is so	River operation makes they so operated and start chedu	station and ting condition anual, etc. with sition of corretallic and not and sulfuric at may have affator. Site vised to determin or replacement everal different and sulfurication for septements and sulfurication for septements. Contract led for Septements and sulfurion for septements and sulfurion for septements and sulfurion for septements.	to estimate be by implementallic mosive stream on-metallic macid environmetal dected corrossits and insple actual plant, including not levels of most or orientation of the corrossits and insplementation of the coronientation h time and funds nting these options. ed to determine as at key points. naterials of nents will be ion will be discuss- ections utilizing nt condition. estimates of time repair will be n was completed 5.	
	NTIFY PROFESSIONAL SCHOOL INV al, etc.)	OLVED (Médical,	SIGNATI	JRE OF PRINCIPAL I	NVESTIGATOR	17 Sept. 1975
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<u> </u>	SUPPORT METHOD (Check one)	TASK NO.		C.J. Chatly		
x	AGENCY STAFF (Intramural) NEGOTIATED CONTRACT	B-12		RESPONSIBLE ORG		
<u> </u>	RESEARCH GRANT			IERL-RTP/	EPA	

\$26,000

X NEGOTIATED CONTRACT RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

STARTING DATE

Aug. 75

ESTIMATED COMPLETION

Dec. 75

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	FPA 77AAZ

TITLE OF PROJECT

Utility FGD Technology Status

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 agencles 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.)				SIGNATURE OF PRINCIPAL INVESTIGATOR DATE		DATE		
N/A								17 Sept. 1975
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х	NEGOTIATED C	ONTRACT		C-1	- -			
	RESEARCH GRA	NT				IERL-RTP, UIPD, EETBEPA		
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U.S. ENVIRONMENT	TAL PROTECTION	AGENCY			Form Approved 1B No. 158-R0081
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NOTICE OF R	ESEARCH PROJ	ECT		SSIE EPA	
PREPARED FOR THE SMITHSONIA				77AA	
TILE OF PROJECT Evaluation of Relative Imp	oact of SO _x I	Emissi	ons from Utilit	Sources y and Non-	on Ambient Air Qual Utility Combustion/
GIVE NAMES, DEPARTMENTS, AND OFFI PROFESSIONAL PERSONNEL ENGAGED Tim Devitt, VP, PEDCo – Robert Stephens, Enginee Robert Amick, Engineer, I	CIAL TITLES OF FIN THE PROJECT. Environment r, PEDCo - 1	al, Inc Enviror	investigators or c. nmental, Inc.		
Robert Amirck, Engineer, 1	LDOO - LIIV	II OIIIII G	intar, mo.		
NAME AND ADDRESS OF APPLICANT IN	STITUTION				
PEDCo - Environmental, In Cincinnati, Ohio	nc.				
SUMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information porting research and are forwarded to inves	Exchange, summarie	s of work	in progress are exchang	ed with governmen	t and private agencies sup-
The objective of this utility and non-utility con The use of high sulfus serve to indicate the important they may be major contributed purpose of this task to as utility combustion source model for assessment of the and analyze existing air of polate these results for many services.	mbustion sount fuels plus ortance of coutors to SO ₂ seess the relative these relative quality and e	the lamentations of the lamentative in the lamentative impacements of the lamentation of	on SO _X ambient rge number of a ring SO _X emiss s which exceed impact of SO _X air quality in o acts. The basi on data from se	air quality non-utility ions from the NAAQ emitted from rder to preson to approach elected region	combustion sources hese sources since S. It is the n utility and non-pare a generic will be to gather cons and to extra-
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V NEGOTIATED CONTRACT	l C-4		RESPONSIBLE ORGAI	NIZATION	-

\$50 K

X NEGOTIATED CONTRACT

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RESEARCH GRANT FUNDS OBLIGATED F.Y. C-4

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

IERL-RTP, UIPD, PTB/ EPA

4/75

ESTIMATED COMPLETION DATE

12/75

STARTING DATE

Ad GIV	NOTICE OF RESEARCH			B No. 158-R0081	
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CIV	TLE OF PROJECT				
	Ivisory Service on Scale-Up of A ve names, departments, and official title ofessional personnel engaged in the pro	S OF PRINCIPAL INVESTIG	SES ATORS OR PROJECT DIREC	TORS AND ALL OTHER	
NA	ME AND ADDRESS OF APPLICANT INSTITUTION				
	ational Academy of Sciences				
	101 Constitution Ave.				
	ashington. D. C. 20418				
SUN	MMARY OF PROPOSED WORK - (1) Objectives, (2) In the Smithsonian Science Information Exchange, surting research and are forwarded to investigators who	mmaries of work in progress a	re exchanged with government	and private agencies sup-	
on ox me EP ai	ne National Academy of Engineers in matters relating to air pollutivides, nitrogen oxides, particular eans of Ad Hoc panels which operated a request these panels review in pollution from stationary sounce national needs.	ion control proces ates and other emi ate within the fra the overall Natio	ses for the contro ssions from statio me of the parent p nal R&D effort for	l of sulfur nary source by anel. At the controlling	
	ne purpose of this project is to seessment of current and future a				
co th id re co	ne study will: 1) identify sulfurentrol technology, alternative state adequacy of the control technolentified gaps: 4) suggest unifor esources required for various rate ontrol of sulfur oxides emissions ources.	trategies, economi Plogy data base an om estimated proce te of application	cs, and process ma d suggest work to ss costing methods of technology and	turity; 3) assess fill-in the ; and 5) identify strategy for	
Re:	ne study will be conducted by the search Council, Division of Enginsisted by ad hoc panels as requieterest.	neering (Commissi	on on Sociotechnic	al Systems),	
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	NTIFY PROFESSIONAL SCHOOL INVOLVED (Medic tal, etc.)	cal, SIGNATURE OF PRIN	ICIPAL INVESTIGATOR	DATE	
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	AGENCY STAFF (Intramutal)	-6 R. E.	R. E. Harrington		
NEGOTIATED CONTRACT		RESPONSIE	RESPONSIBLE ORGANIZATION IERL-RTP / EPA		
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r UN	NDS OBLIGATED F.Y. NO. OF FUTURE YEA	RS TENTATIVELY JRRENT F.Y,	STARTING DATE	ESTIMATED COMPLETION	

\$200,000

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12/30/74

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U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved							
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NOTICE OF RESEARCH PROJECT	SSIE							
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAZ							
Power Plant Plume and Sulfate Study in Complex Terrain								
Robert C. Koch, Sr. Research Scientist, Office of Environmental Mgmt. (Project Manager) Douglas J. Pelton, Research Scientist, Office of Environmental Mgmt. (Director/Field) 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								
Summarry of Profosed 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. 1.0 Objectives: (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.								
2. Approach: (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 MM coal-fired Clinch River Power Plant in the Appalachian Mountains at Carbo, Virginia Parameters observed continuously will include meteorology; NO _X and SO _X emissions: concentrations over time and space of NO _X , SO ₂ , sulfates and O ₃ 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.								
3. <u>Progress and Plans</u> : Work began October 31, 1975. Fiel with completion May 1977. Analyses and modeling will be called the carries of the second second in early 1978.	d measurements begin June 1975							
IVENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL TO	ZSTIESTON DATE							
dental, etc.) JOHN L. SWIFT TOWN								
N.A. Project Manager December 3, 1975								
FOR OFFICE USE ONLY SUPPORT MCTHOD (Check one) TASK NO. PROJECT OFFICER								
ACTION STATE (Introductal) ACTION STATE (Introductal) J.K. Burchan	d							
X NEGOTIATED CONTRACT C-7 RESPONSIBLE ORGAN								
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TENTATIVELY STARTH	NG DATE ESTIMATED COMPLETION							
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EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND THE ICH MAY NOT BE	USED.							

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved
	OMB No. 158-R0081 PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77ABA
FGC Waste Characterization Disposal Metho Transfer of Technical Information	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	PROJECT DIRECTORS AND ALL OTHER
Julian W. Jones, Project Officer	
NAME AND ADDRESS OF APPLICANT INSTITUTION	
INTERIM	100
In the Smithsonian Science Information Exchange, summaries of work in progress are exchang porting research and are forwarded to investigators who request such information. Your summary This is a modification to existing Contract 68-02-10 current sampling and analysis effort to include flue gas of additional plants; this will expand the current effort from program results more widely applicable. The modification current physical testing efforts; a new sub-task for enging producing (oxidation) processes, which have recently emproducing (oxidation) processes, which have recently emproducing (oxidation) and expansion of support for a more expected through a support in the second private industry efforts in the area of flue gas cleaning was cleaning to participation in all EPA program coordination meetings and integrated report on flue gas cleaning waste disposal testing and the second processes. This task will include formal broads assembling information for EPA's Office of Technology Transfer.	Olo, which expands the cleaning waste products from om 8 plants to 13, making the on also includes expansion of meering analyses of gypsumnerged as an alternative to extensive EPA field study of addition, the modification dassessment of all EPA and waste disposal, including a preparation of an annual chnology.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			signature of principal investigator Jerome Rossoff			DATE		
				F	OR OFFIC	E USE ONLY		
SUPPORT METHOD (Check one) TASK NO.				PROJECT OF	FFICER			
	AGENCY STAFE	(Intremu	tal)			Tulian	W. Jones	
×	* NEGOTIATED CONTRACT		1		RESPONSIBLE ORGANIZATION			
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_	\$500 K	F.Y. 75		UTURE YEARS T BEYOND CURRE Unknow	NT F.Y.	ELY	Oct. 75 (ex	estimated completion Date Oct. 76

61'A Form 5760-1 (7-72)

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

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	77ABA

TITLE OF PROJECT

An Evaluation of Alternatives for the Disposal of Flue Gas Desulfurization Sludges give names, departments, and official titles of principal investigators or project directors and all other professional personnel engaged in the project.

Dr. Richard R. Lunt, Project Director, Senior Consultant

NAME AND ADDRESS OF APPLICANT INSTITUTION

Arthur D. Little, Inc.

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.

This two-phase study involves the investigation of the feasibility of the disposal of FGD sludges in mines and in the ocean.

Technical Objectives and Scope

<u>Phase I - Evaluation of Alternative Disposal Options</u>

- Assess the potential environmental impact of the disposal of FGD sludges in mines and the ocean;
- 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:
- Determine reasonable disposal system criteria for protecting the environment and develop realistic approaches, if possible, for implementing ocean and/or mine disposal systems; and
- Assess the costs for conceptualized disposal systems, including the impact of the economics on the costs of FGD systems.

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 environ mental fate and the applicability of available and developing technology in implementing disposal operations.

Phase II - Verification and Demonstration of One Mine and One Ocean Disposal Alternative

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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					s/Richard R. Lunt			9/16/75
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SUPPORT METHOD (Check one) AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT			Julia		W. Jones E ORGANIZATION			
	X NEGOTIATED CONTRACT			-1	IERL-I	IERL-RTP, UIPD, EETB/EPA		
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NOTICE OF R	RESEARCH PROJE	СТ		SSIE				
PREPARED FOR THE SMITHSON	IAN SCIENCE INFORM	AATION EXCHA	4G E	77ABA				
TITLE OF PROJECT Compilation	n of Data Base	e for Deve	lopment of	Standards/	Regulation			
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED Curtis J. Schmidt, Proje	IN THE PROJECT.	Cleaning RINCIPAL INVES	Wastes Tigators or	PROJECT DIRECT	ORS AND ALL OTHER			
NAME AND ADDRESS OF APPLICANT IN								
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In the Smithsonian Science Information porting research and are forwarded to inve The purpose of this to support the developm desulfurization (FGC) s and activites related to consist of two phases. by the FGC system user pilation and selection of water) which have been of the economic and insishall consist of the sel applied to the developm sludges. In addition, r will be identified. Althon both phases, Phase	stigators who request so project is to pent of standard ludges and to the developm Phase I shall to evaluate he fexisting or por could be a stitutional implection or proposent of a prelimesearch and drough a limited	obtain existed suggest nent of stard consist of proposed repulsed to leact of existed so all consists of existed proposed repulsed to leact of existed so all of on minary set development of amount of existed amount of existed amount of existed so all of on minary set development of amount of existed amount of existed amount of existed amount of existed so all of on minary set development of existed amount	sting data tions for lew research dards and of the esta- disposal of egulations FGC wastes ting or pre- e or more in of guideling of work may	and evaluations and disposations, developed regulations blishment of the disposations	and private agencies sup- lese purposes. Ite its adequacy al of flue gas ment, planning, s. The work shall f criteria needed luding the com- surface or ground and the evaluation alations. Phase II which will be disposal of FGC ne guidelines that ted simultaneously			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) DATE								
	Curtis J. Schmidt							
FOR OFFICE USE ONLY								
SUPPORT METHOD (Check one)	TASK NO.	PROJE	CT OFFICER					
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SE MESOTIATED CONTRACT	1 6	1 RESPO	NSIBLE ORGAN	IZATION				

RESEARCH GRANT
FUNDS OBLIGATED F.Y.

75

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

Unknown

MERC (Cincinnati) EPA

STARTING DATE

ESTIMATED COMPLETION DATE

U.S. ENVIRONMENTAL PROTECTION AGE	Form Approved OMB No. 158-R0081		
NOTICE OF RESEARCH PROJEC	ТТ	PROJECT NO. (Do not use this space) SSIE	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMA	77ABA		
Water Recycle/Reuse Alternatives in C	oal-Fired Steam	Electric Power Plants	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRIN PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	ICIPAL INVESTIGATORS	OR PROJECT DIRECTORS AND ALL OTHER	
P.E. Hudson, Principal Scientist			
NAME AND ADDRESS OF APPLICANT INSTITUTION	Radian Co P.O. Box 8500 Shoa Austin, TY	9948 11 Creek Blvd.	

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.

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 reportdetailed presentation of program results, including recommendations of the recycle/ reuse options to be used at each of the plants studied.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					P. E. Hudson			DATE	
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SUPPORT METHOD (Check one) TASK NO.			TASK NO.	PROJECT OFFICER					
	AGENCY STAFF (Intramural)			Fred Roberts					
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RESEARCH GRANT				IERL-RTP, UIPD, EETB		/ EPA			
\$197,300 75		UTURE YEARS TE BEYOND CURREN UNKNOWN	NTATIVE	LY 🖦	starting date July 75	ESTIMATED COMPLETION DATE July 76			

U.S. ET NRONMENTAL PROTECTION	AGENCY		orm Approved No. 158-R0081		
NOTICE OF RESEARCH PRO	NOTICE OF RESEARCH PROJECT				
PREPARED FOR THE SMITHSONIAN SCIENCE INFO	FPA 77ABA				
TITLE OF BROJECT Lime/Limestone Scrubbing Sludge C	onversion Pilot Stud	У			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. A.G. Sliger, Section Head, Environ		R PROJECT DIRECTO	ORS AND ALL OTHER		
The M. W. Kellogg Company Three Greenway Plaza East Houston, TX 77046					
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Appro- In the Smithsonian Science Information Exchange, summari porting research and are forwarded to investigators who reques The project is designed to condition to cant process steps of Kellogg's properties and plans to apply for a stone scrubbing and sludge oxidation tested on a pilot scale. This prograspecifically (1) reduction of the Castreductant, (2) dissolution of the Castreductant, (2) dissolution of the Castreductant S). The sludge reduction this program, it will be tested in a precipitation steps have been tested Cas; in this program further bench pilot scale continuous tests of thes	es of work in progress are exchant such information. Your summa fluct further research prietary "Kel-S" proceed third. The overall on steps which have am involves further in SO3-CaSO4 mixture S to Ca(HS)2, and (S release of H2S for step has been tested larger, continuous kel on a bench scale uscale tests with red	and development and developments, for which seems, for which seems, for which seems, for which seems, for which seems already been opposed in a small be sing commerciation. The dissuing commerciation and sludge, stated.	and private agencies sup- se purposes. ment on signifi— h Kellogg holds i includes lime— extensively the sludge, coal as the recipitation) of duction of patch kiln; in solution and ially produced		
dental, etc.)	A.G. Slige				
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SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFICER Julian W. J	ones			

\$750 K

AGENCY STAFF (Intramutal)

75

X NEGOTIATED CONTRACT RESEARCH GRANT

FUNDS OBLIGATED F.Y.

8

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

RESPONSIBLE ORGANIZATION IEKL-RTP, VIPD, EETB / EPA

STARTING DATE

10/75

ESTIMATED COMPLETION

3/77

U.S. ENVIRONMENTAL PROTECTION	AGENCY		orm Approved 3 No. 158-R0081
NOTICE OF RESEARCH PRO	JECT	PROJECT NO. (D	o not use this space)
		EPA	
PREPARED FOR THE SMITHSONIAN SCIENCE INFO	RMATION EXCHANGE	_77ABA	
TITLE OF PROJECT Instrumental Measuremen Demister Evaluation	t of Liquid Drople	t Size Distribu	ition for
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.		S OR PROJECT DIRECT	ORS AND ALL OTHER
NAME AND ADDRESS OF APPLICANT INSTITUTION KLD Associates, Inc. Suite 204, 7 High St. Huntington, N. Y. 11743			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Appro- In the Smithsonian Science Information Exchange, summari- porting research and are forwarded to investigators who reques Demister efficiency has become a major tional status due to possible penetra the atmosphere. Measurement technique demister performance. IERL-RTP devel size liquid aerosols and testing of to provements are needed for successful It is expected that completion of the of determining demister performance or range of the device will be increased slurry scrubbers/demisters. Automatif for process control applications. This contract will extend the use of demister evaluation, an area of urgen niques will allow the selection of de eliminate direct sulfate emissions fr control of the scrubbers and demister	es of work in progress are exist such information. Your sun or concern as SO ₂ ation of sulfate muses have not been a coped a prototype this device indicate application of the continuously. Relate to encompass the cand remote monitor the droplet sizing the concern to EPA. Emister technology com SO ₂ scrubbers as	changed with government imary is to be used for the scrubbers have atterial which the available to distribute a several area device to substructed a total and ability, performent for toring systems of the device to substructed a total and a substructed a total and a substructed a total and a substructed a total and a substructed a total and a substructed a substru	and private agencies sup- ese purposes. reached opera- hen enters rectly measure h is able to as in which im- fate scrubbers. system capable rmance, and und in SO ₂ will be devised fate scrubber ement tech- nimize or
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SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFIC	`ED	

\$99,300

AGENCY STAFF (Intramural)
NEGOTIATED CONTRACT

75

RESEARCH GRANT

FUNDS OBLIGATED F.Y.

11

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

Bruce Harris
RESPONSIBLE ORGANIZATION

STARTING DATE

6/25/75

ESTIMATED COMPLETION DATE

7/25/76

IERL-RTP / EPA

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	U.S. ENVIRONMEN	ITAL PROTECTION	AGENCY		The second secon		Form Appr		
	•				<u></u>		MB No. 158		
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	PREPARED FOR THE SMITHSON	IAN SCIENCE INFOR	MOITAM:	EXCHANGE		7 <i>7</i> ABA	-012	na programa de la compansión de la compa	
TIT	Lime/Limestone Scrubb	ng Sludge Co	nvers	ion Pilo	t Study				
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SUI	The M. W. Kellogg Com Three Greenway Plaza I Houston, TX 77046 MMARY OF PROPOSED WORK - (1) O In the Smithsonian Science Information ting research and are forwarded to inve The project is desi cant process steps of K two patents and plans t stone scrubbing and slu	pany last bjectives, (2) Appropriate the conduction of the conduc	such inf act fur rietar third.	ormation. Your ther res y "Kel—S The over which	earch and earch and "process rerall Kel have alre	with governme o be used for d develo; , for wh -S proce eady bee	nt and privat these purpos oment of ich Kell ss inclu n exten	n signif ogg hol des lin sively	i - .ds
	tested on a pilot scale. specifically (1) reduction reductant, (2) dissolution the Ca as CaCO ₃ (with elemental S). The sludthis program, it will be precipitation steps have CaS; in this program furpilot scale continuous to	on of the CaS on of the CaS simultaneous ge reduction tested in a la been tested rther bench s	O ₃ -Ca sto Ca step arger, on a	aSO ₄ mi a (HS) ₂ , ase of H as been continu bench s tests wi	xture to (and (3) re 2 ^S for pot tested in ious kiln. cale usin th reduce	CaS using covery sential properties of the commend	g coal a (precipit roduction batch l ssolution rcially p	s the tation) on on of kiln; in on and produce	1
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FUNDS OBLIGATED F.Y.
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NO OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. UNKNOWN

STARTING DATE

ESTIMATED COMPLETION DATE

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	PREPARED FO	OR THE SA	MITHSONI	AN SCIENCE INFOR	RMATION EXCHA	NGE	77ABB	
TITLE	of PROJECT sessment,	Cont	rol, a	nd Health Eff	ects of Ind	oor Air P	ollution	
					RINCIPAL INVE	TIGATORS O	PROJECT DIRECTO	ORS AND ALL OTHER
	-			IN THE PROJECT.	מו דא רום	A DC		
l .	Walter Steen, Co-Project Officer, IERL, EACD, APS Doug Worf, Project Director, EMSL, OD							
	oug worr,	riojec	r Dite	Ctor, EMSE,	OD			
12005	AND ADDRESS	05 4001	ICANT IN	CTITUTION				
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								ss. Omit confidentia data).
							ged with government a , is to be used for the	nd private agencles sup- se purposes.
Ot	ojectives:							
A.	To iden	tify th	e indo	or and outdo	or pollution	sources	which affect	indoor air quality.
В.	To dete	rmine	the re	lative magnit	tude and co	ncentrati	on of the poll	utants from these
	sources	in the	e indo	or environme	nt.			
C.	Toasse	ess the	poter	ntial or actua	l health an	d welfare	effects of th	ese pollutants
	upon o	ccupan	ts of i	ndoor structi	ıres.			
D.	To dete	rmine	the im	pact and ass	ess the im	portance	of energy con	servation
	measur	es (as	applie	ed to existing	g and new s	structures) upon the ge	neration, build-
1	up, and	i elimi	nation	of indoor ai	r pollutants	s .		
E.	To iden	tify va	rious	control techi	niques whic	ch could	oe utilized to	reduce the con-
1	centrat	ion and	d effec	cts of indoor	air contam:	inants fo	the protection	on of public
	health a	and we	elfare.					
F.							d be taken in	
				which would	l reduce or	eliminate	unacceptable	e levels of indoor
	air contaminants.							
An	proach:							
1		rk to b	e nerf	ormed under	the contact	is divide	ed into three p	nha ses
			-				_	
Α.	A. The first phase will include a review and assessment of published literature					d literature		
	-	-		ch efforts.				
В.		_						r monitoring and
l _						_	ugh mathemat	
C.	A third	pha se	defini	tion of effec	ts of specif	fied indo	or air pollutan	its on the health
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dental,	erc.)							
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RESEARCH GRANT								
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		NOTIC	E OF R	ESEARCH PROJ	ECT			SSIE		
PRE	PARED FOR	THE SA	AITHSON	AN SCIENCE INFORI	MATION I	EXCHANGE		77ABB		÷
TITLE OF F	ssment,	Cont	rol, a	nd Health Eff	ects c	f Indoor	Air Pol	lution		
PROFESSIO	NAL PERSOI	NNEL E	NGAGED	CIAL TITLES OF PI			_	ROJECT DIRECTO	RS AND ALL	OTHER
	Walter Steen, Co-Project Officer, IERL, EACD, APS Doug Worf, Project Director, EMSL, OD									
NAME AND	ADDRESS OF	FAPPL	CANT IN	STITUTION						
Interi	lm									
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	of expos II.	ed po	pulati	ons will be o	consid	ered for	funding	at the comp	pletion o	f Phase
	ent Plans		ualifie	d contractor.						
	io selec	, tu q	udilic	a confidence.						
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U.S. ENVIRONMENTAL PROTECTION	AGENCY	•	orm Approved No. 158-R0081		
NOTICE OF DESCRIPTION PROJECT		PROJECT NO. (Do not use this space)			
NOTICE OF RESEARCH PRO	JECT	SSIE EPA			
PREPARED FOR THE SMITHSONIAN SCIENCE INFO	RMATION EXCHANGE	77ABD			
Catalytic Reduction of NO _X , Pilot F	Plant Operations - C	Continuation			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT	PRINCIPAL INVESTIGATORS		ORS AND ALL OTHER		
Y.C. Lee, President					
Jules Kline, Principal Investigator					
Environics, Inc.					
7424 Lorge Circle Huntington Beach, CA 92647	-				
SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Appro In the Smithsonian Science Information Exchange, summar porting research and are forwarded to investigators who reque	ies of work in progress are exch	anged with government	and private agencies sup-		
Environics, Inc., has been co	nducting pilot plant	testing of cat	alytic NO _x		
reduction under EPA Contract #68-0	•	•			
The original purpose of the conto operate it for a period of nine to demonstrate the commercial feasibic continuous operation from June 1973 periods of oil firing. Total operation Efficiency in the 85-95% range.	twelve months unde lity of the process. until July 1974 exc	er gas firing or The pilot pla cept for plant s	nly, in order to nt was in shutdowns and		
Because of the projected shortage of natural gas, the success obtained during gas fired tests, and the perceived need for commercial NO 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.					
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N.A.	SIGNATURE OF PRINCIPAL	INVESTIGATOR	DATE Sept. 17, 1975		
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U.S. E IVIRONMEN	NTAL PROTECTION	AGENCY		orm Approved No. 158-R0081					
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TITLE OF PROJECT NO _x Control Technology	Status Repor	ts	App. Access						
GIVE NAMES, DEPARTMENTS, AND OF PROFESSIONAL PERSONNEL ENGAGE	FICIAL TITLES OF F	PRINCIPAL INVESTIGAT	TORS OR PROJECT DIRECTO	ORS AND ALL OTHER					
L.W. Anderson, Project	Manager			۸					
NAME AND ADDRESS OF APPLICANT I			<u> </u>						
Aerotherm Division, Acu 485 Clyde Avenue, Mou	-								
SUMMARY OF PROPOSED WORK — (1) O In the Smithsonian Science Information porting research and are forwarded to inve	n Exchange, summarie	es of work in progress are	e exchanged with government a	and private agencies sup-					
Numerous technical	papers and r	eports have bea	en published in rec	ent years on					
the subject of control of	nitrogen oxid	des from station	nary sources. The	present					
state-of-the-art is well Federal New Source Perf			=						
of equipment classes an	d are planned	for other source	ces in the near futu	ure. Additionally,					
State and local standard sources.	s for NO _x are	in effect-for s	pecific existing an	d new combustion					
It is important that	the technical	community end	eged in research a	and development					
of NO _X control methods,			_						
enforcement, be kept inf	formed of the	status of NO_X	control technology	developments					
and implementation. By implemented NO _X control				-					
improved and technology		_		•					
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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-IAG-D5-E721-AZ
TITLE OF PROJECT Lime/Limestone and Advanced ConceptsTVA's 1-MW Pilot Pl	Lant (Colbert)
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS O PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	R PROJECT DIRECTORS AND ALL OTHER
Dr. Gerald A. Hollinden, Chemical Engineer, TVA Power Res Building, Chattanooga, Tennessee 37401, telephone: 615 Russell F. Robards, Chemical Engineer, TVA Power Research Chattanooga, Tennessee 37401, telephone: 615/755-2771	5/755-2771 n Staff, 524 Power Building,
NAME AND ADDRESS OF APPLICANT INSTITUTION	
Tennessee Valley Authority Knoxville, Tennessee	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Pro In the Smithsonian Science Information Exchange, summaries of work in progress are exchan porting research and are forwarded to investigators who request such information. Your summar	nged with government and private agencies sup-
The objectives of this study are to determine the effects liquid loadings on mist eliminator performance and to det chemical methods necessary to maintain continuous reliable to be carried out at TVA's 1-MW lime/limestone pilot plant Colbert Power Plant. The initial mist eliminator designs compilation of data received from previous pilot plant to of other research projects throughout the world. Current plans are to continue testing until a reliable mi washing scheme are achieved.	termine the mechanical and le operation. The study is at facility located at the sare formed from a lests at TVA and observations
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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, signature of PRINCIPAL I dental, etc.)	Roberts Ougust 12, 1975
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DESCONSIDE SONG	linden, Russell F. Robards
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\$600

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5 T 1975

RESEARCH GRANT

FUNDS OBLIGATED F.Y.

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

Power Research Staff, TVA

STARTING DATE

May 7, 1975

ESTIMATED COMPLETION DATE

August 1, 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

SSIE

NOTICE OF RESEARCH PROJECT

EPA

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

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			angret 13, 1975
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\$2	200 K	1975	1 _	25 years			May 7, 1975	September 1977

U.S. ENVIPONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE EPA EPA—TAG-D5-E721-BB

TITLE OF PROJECT

Characterization of Effluents from Coal Fired Utility Boilers

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.

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RESEARCH GRANT A A SANSA				Power Research Staff, TVA			
FUN	NDS OBLIGATED F.Y.	NO. OF FUTURE YEAR		LY S	TARTING DATE	ESTIMATED COMPLETION	
	\$850 <u>K</u> 1975		KRENI F.Y.		May 1975	June 1978	

EPA Form 5760-1 (7-72)

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

	U.S. ENVIRONME	ENTAL PROTECTION AGENCY			Approved			
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				PROJECT NO. (Do no	use this space)			
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	PREPARED FOR THE SMITHSO	EPA-IAG-D5-E7	21-BC					
	LE OF PROJECT y Ash Characterization	and Disposal						
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1	In the Smithsonian Science Information	Objectives, (2) Approach, (3) Current Pla on Exchange, summaries of work in progre vestigators who request such information.	ss are exchange	d with government and	orivate agencies sup-			
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	rrently data is being	g collected for the summar	y of avai	lable informat	ion on eahea			
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June 1975

ESTIMATED COMPLETION DATE
May 6, 1980

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U.S. ENVIRONMENTAL PROTECTION	AGENCY		form Approved					
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NOTICE OF RESEARCH PRO	IFCT	SSIE	Oo not use this space)					
NOTICE OF RESERVENT INC.		EPA						
PREPARED FOR THE SMITHSONIAN SCIENCE INFOR	RMATION EXCHANGE	EPA-IA	G-D5-E721-BH					
Energy Requirement Opti	mization Study	of Selected Proc	esses for					
Removing SO2 from Power GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	PRINCIPAL INVESTIGAT	ISES ORS OR PROJECT DIRECT	FORS AND ALL OTHER					
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 I	evelopment							
Muscle Shoals, Alabama 35660	-1 (2) C Pl 1	(D () (000)	A 14					
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approa In the Smithsonian Science Information Exchange, summarie porting research and are forwarded to investigators who request	s of work in progress are	exchanged with government	and private agencies sup-					
The primary objectives of the study p	project are to s	nummarize the ener	rgy requirements					
of selected power plant stack gas SO								
feasibility analyses of process modifi								
requirements for the processes. Cond								
for energy requirement data. Also a								
for any existing demonstration and co								
surveys will be summarized and analyzed level for each of the processes. Fea								
made of process modifications and var								
requirements. Process modifications								
items as scrubber type, reheat level								
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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	SIGNATURE OF PRINC		DATE					
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<u></u>	A. F. Little	2	8/11/75					
SUPPORT METHOD (Check one) TASK NO.	PROJECT OF	FICER						
AGENCY STAFF (Intramural)	A. F. Lit							
X NEGOTIATED CONTRACT	RESPONSIBL	E ORGANIZATION						
RESEARCH GRANT	Tennessee Office of	valley Authorit	y Chemical Development					
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TE ASSURED BEYOND CURRE	NTATIVELY	STARTING DATE	ESTIMATED COMPLETION					
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May 7, 1975

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U.S. ENVIRO	NMENTAL PROTECTION AGEN	CY			orm Approved No. 158-R0081			
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NOTICE	OF RESEARCH PROJECT		SSIE					
PREPARED FOR THE SMIT	HSONIAN SCIENCE INFORMATION	ON EXCHANGE	EPA	EPA-IAC	G-D5-E721-BI			
Remova	ative Economics of M 1 of SO ₂ from Power	Plant Stack	c Gases					
GIVE NAMES, DEPARTMENTS, AN PROFESSIONAL PERSONNEL ENG	D OFFICIAL TITLES OF PRINCI AGED IN THE PROJECT.	IPAL INVESTIGA	TORS OR PROJE		_			
Project Director: H. L. Faucett, Supervisor, Conceptual Designs, Design Branch* (ext. 449 or 355).								
Support personnel: (ext. 483 or 355).	Support personnel: S. V. Tomlinson, Chemical Engineer, Design Branch* (ext. 483 or 355).							
NAME AND ADDRESS OF APPLICA		202 202 466						
*Tennessee Valley Aut			31)					
	al and Chemical Deve	Lopment						
Muscle Shoals, Alaba		6	1/ = /2					
SUMMARY OF PROPOSED WORK - In the Smithsonian Science Infor porting research and are forwarded t	mation Exchange, summaries of w	ork in progress are	exchanged with	government a	nd private agencies sup-			
The primary purpose of Task I is to review recently developed processes for desulfurization of power plant stack gases; then, systematically select and evaluate those								
	est degree of develo							
	economically. Thes							
	ances, and commercia							
	s equipment costs; p							
operating costs; and	analysis of design	and econom	rc variable	es for co	ist sensitivity.			
an SO ₂ removal proce	objective, assistancess of the regenerabl	e, sulfur-	roducing	type for	demonstration-			
	.00-MW electric power							
	milar demonstration- nary economic estima				:ive technology			
As part of the overa								
provide a design and	cost study of the n	umerous lin	ne-limesto	ne scrubb	ing sludge dis-			
posal alternatives.	The economic and te	chnical pre	mises for	these co	mparisons will			
be established and s	urveys of cost studi	es and cost	data for	operatin	ig and planned			
commercial units wil	1 be made.	\						
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AGENCY STAFF (Intramural)		H. L. Fau						
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RESEARCH GRANT		Office of	Valley A	ural & Ch	nemical Development			
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	FESSIONAL PERSONNEL E			m	* * * * * * * * * * * * * * * * * * * *
Supp	ort personnel:	Dr. J. L. Nevins	. Head. System	rest & Demor	nstration Br.* (ext. 282). Dev. Staff,
Te	est & Demonstrati	on Branch* (ext.	784).		
Р.	A. Corrigan, Se	nior Project Lead	ics Section, T <u>der, Process E</u>	est & Demonst ngineering B	ration Branch* (ext. 783)
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	ice of Agricultu		Development		
	scle Shoals, Alab				
Ir	MARY OF PROPOSED WORK in the Smithsonian Science In ing research and are forwarde	nformation Exchange, summa	ries of work in progres	s are exchanged with	0 words or less. Omit confidential data). government and private agencies sup- e used for these purposes.
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Development of Flue Gas Desulfurization TechnologyPilot-Plant Study of the Ammonia Absorption - Ammonium Bisulfate Regeneration Process 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 *Tennessee Val Office of Agr Muscle Shoals SUMMARY OF PROPO	of APPL lley Au cicultu s, Alab	ICANTINSTITUTION thority (Teleph ral and Chemical ama 35660	Develop	oment rrent Plans an	d/or Progress (ess. Omit confidential data).	
Ammonia scrul requirement of formed by unative sering operation and addition of the formed by unative stream of SO studied. The absorption Release and regeneration crystallize to section and addition of the formed serial serial section of the formed serial ser	obing we compare avoidable ated to a for for for section can be composed among the dec	d with other reco le oxidation is a o study the combi regeneration to p	ulfate recovery me a useful ination produce g. Sepa with the 1 SO2 has recovered to	regeneration of ammonia in aration of as been as allizer was attion. A co ammonia cycle to the control of the cycle to the control of the cycle to the cycle of t	ion has the foreover, (fertilist a scrubble for recycle byproduce emission we complished as install decomposed for recycle regeneration as the regeneration of the reg	he advant ammonium zer). A ing for S le and a ct ammoni within aced satisfied to cover will bycle to teration s	age of low energy sulfate which is 1-MW pilot plant 0_2 removal and concentrated um sulfate will be ceptable limits. actorily in the ncentrate and e installed in he absorption ection. The	
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Non	e	1	T.	M. Kelso			8/11/75	
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X NEGOTIATED C		, I		RESPONSIBL	E ORGANIZAT			
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U.S. ENVI	RENMENTAL PROTECTION	AGENCY		Form Approved
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	<i>y</i>		PROJECT NO.	(Do not use this space)
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TITLE OF PROJECT Devel	opment of Flue Gas	Desulfurizati	on Technology	
GIVE NAMES, DEPARTMENTS, A	IND OFFICIAL TITLES OF P	RINCIPAL INVESTIGA	TORS OR PROJECT DIREC	CTORS AND ALL OTHER
Project Director:	H. W. Elder, Dire	ctor Stack Gas	Emission Studie	s Staff* (ext. 516).
Support personnel:	A. F. Little Pro	siect Engineer	Design Branch*	(ext 355)
S. B. Jackson, Ch	nemical Engineer,	Design Branch*	(ext. 348).	(6 333).
J. K. Metcalfe, T	Test Facility Super	rvisor, Shawnee	Steam Plant, Te	nnessee Valley
Authority, Paduc	eah, Kentucky 4200	Ol (Telephone	502-443-6480).	Ì
NAME AND ADDRESS OF APPLI	CANT INSTITUTION			
*Tennessee Valley Au		one 205-383-463	31)	
Office of Agricultu		Development		
Muscle Shoals, Alab	oama 35660			
SUMMARY OF PROPOSED WORK				
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porting research and are forwarded	T to mive striketors who reddest	such information, You	summary is to be used for	mese purposes.
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wet scrubbing offer				
stack gases at larg				
a prototype-scale				
(unit 10). The pro				
project will evalua				
scrubbing for remov				s with lime are
also included. As				2
sludge treatment/di				
lime/dolomitic lime				
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May 7, 1975

July 1977

U.S. ENVIRONMENTAL PROTECTION AGENCY

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

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NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

EPA-IAG-D5-E721-BM

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TITLE OF PROJECT

Advanced Concepts SO₂ Removal Process Improvements - Bench-Scale Studies

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_2 from stack gases, absorption of SO_2 , 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_2 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.

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NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77 BBV (EPA-IAG-D5-E681-BV)
TITLE OF PROJECT	

Pilot Plant Scrubber Test Program for the Milton R. Young Generating Station

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

Everett Sondreal, Principal Investigator, Research Supervisor, Combustion & Liquefaction Phil Tufte, Research Chemical Engineer, Combustion & Liquefaction

Harvey Ness, Research Chemist, Combustion & Liquefaction

Willis Beckering, Research Chemist, Combustion & Liquefaction

Roy Severson, Chemical Engineer, Combustion & Liquefaction NAME AND ADDRESS OF APPLICANT INSTITUTION

Grand Forks Energy Research Center

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

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.

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	AGENCY STAFF	(Intronur	al)	, ,		Everett A. Sondreal				
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	RESEARCH GRA	NT				ERDA/Grand Forks Energy Research Ctr., N.				
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EPA Form 5760-1 (7-72)

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE EPA PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 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.

The major objectives are as part of an ongoing program on removal of SO_2 from flue gas using alkaline fly ash from low-rank Western coals to:

- 1. Design and construct a 5,000 acfm pilot plant at a power cooperative generating station.
- 2. Operate the 5,000 acfm pilot plant to obtain test data on a sufficient scale to indicate commercial feasibility.
- 3. Support larger scale test work with existing laboratory and 120 ascfm pilot plant tests.

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.

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	W.A. McKinney, Re				
	W.I. Nissen, Proje	ect Leader			
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	To initiate contract	cural procedures for	the design	and construction of	of large-scale
С	itrate process demon	stration plant for the	e removal d	of SO ₂ from the flu	e gas of a
p	owerplant burning hig	gh sulfur coal. This	effort wil	l be coordinating t	ne Environ m ental
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nvironmental Assessment/	Systems Analysis and Program	Support for Fluidized-Bed Combus- RS OR PROJECT DIRECTORS AND ALL OTHER		
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RESEARCH GRANT
FUNDS OBLIGATED F.Y.

75

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

IERL-RTP / EPA

STARTING DATE

Feb. 76 (Est.)

ESTIMATED COMPLETION DATE

Thru 9/82

U.S. ENVIRONMENT	TAL PROTECTION A	GENCY		Form Approved B No. 158-R0081
NOTICE OF R	ESEARCH PROJE	CT	PROJECT NO. (D	o not use this space)
PREPARED FOR THE SMITHSONIA	AN SCIENCE INFORM	IATION EXCHANGE	77AA	M·
TITLE OF PROJECT Environmental Assessi	ment of Dispo	sal of Solid and 1	Liquid Wastes	from FBC
GIVE NAMES, DEPARTMENTS, AND OFFI PROFESSIONAL PERSONNEL ENGAGED	CIAL TITLES OF PE			
D.B. Henschel, IERL/R.A. Chapman, EPA -		<u> </u>		
NAME AND ADDRESS OF APPLICANT IN	STITUTION	19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -		
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Wastes from at le for investigation. The in a fluidized bed of condition of the condition o	ese processed dolomite at 4 ion, (2) a pro- ted pressures , and (3) a pro- nospheric pre-	s are: (1) a systematmospheres prescess that burns hat close to stoic ocess that gasifies sure conditions.	em that burns h sure at 300% e igh sulfur coal hiometric cond es high sulfur	aigh sulfur coal excess air, with lin a fluidized litions, with oil in a fluidized
IDENTIFY PROFESSIONAL SCHOOL INVO	DLVED (Medical,	SIGNATURE OF PRINCIPAL	INVESTIGATOR	DATE
				17 Sept. 1975
	FOR	OFFICE USE ONLY		
SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICE		
AGENCY, STAFF (Intramural)		N.A. OH	4 P-11 WII	

FUNDS OBLIGATED

75

NEGOTIATED CONTRACT RESEARCH GRANT

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

RESPONSIBLE ORGANIZATION
EPA - ORD - OEMI - Cincinnati

ESTIMATED COMPLETION DATE

STARTING DATE

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and high p	ressur	e flu	idized bed	l comb	ustors.	In o	rder to a	dequately
								y requirements
for these	proces	ses i	t is neces	sary	to make	measu	rements i	n the process
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environmen	t, sev	eral	factors th	at do	not po	se sig	nificant	sampling
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elevated c								materials of
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ment techn	iques	for h	igh temper	ature	, high	pressu	re applic	ations.
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			No. 158-R0081
NOTICE OF RESEARCH PROJECT		PROJECT NO. (Do :	not use this space)
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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATIO	N EXCHANGE	77AAN	
Preliminary Environmental Assessment of t	he Fluidize	od-Red Combustion	Process
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIL PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			
Dr. Paul F. Fennelly			
D11 1 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
NAME AND ADDRESS OF APPLICANT INSTITUTION			
GCA/Technology Division			
Burlington Road			
Bedford, Mass. 01730			
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) In the Smithsonian Science Information Exchange, summaries of wo	rk in progress are	exchanged with government ar	d private agencies sup-
porting research and are forwarded to investigators who request such i	nformation. Your	summary is to be used for thes	e purposes.
As now of this proliminary environmen	+-1	mont of the fluidig	ad had
As part of this preliminary environmer combustion process, the contractor will:	itai assess	ment of the Huldiz	eu-beu
a) identify the universe of pollutants	which cou	ld conceivably be	emitted from
fluidized-bed boilers;		3 3 1 3 - 1	144 . 1 6
b) conduct an engineering evaluation		nose wnich may be	e emitted from
FBC at levels which are significa c) assess control technology for sign		lutante	
c, assess control technology for sign	iiiicain poi	iutairts.	
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	E NAMES, DEPARTMENTS, AND OF	FFICIAL TITLES OF PRINCE	PAL INVESTIGATORS	R PROJECT DIRECT	ORS AND ALL OTHER
PR	OFESSIONAL PERSONNEL ENGAGE	ED IN THE PROJECT.			
	Dr. R.R. Bertrand				
	Dr. R.C. Hoke				
	Mr. M.S. Nutkis				i
NA	ME AND ADDRESS OF APPLICANT	INCTITUTION			
NA	Exxon Research and				
	Post Office Box 8	migniculing co.			-
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÷.	i.d. combustor capa				
	employed. Data are				
	over a wide range of				
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	experimental equipme	ent, and to invest	igate specific t	echnical ques	tions and
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\$186,629

RESEARCH GRANT FUNDS OBLIGATED

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NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. ${f l}$

STARTING DATE 27 June 1974 ESTIMATED COMPLETION DATE 7 Sept. 1975

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TITLE OF PROJECT			10101	
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g) general engin		_	and spont sorzons,	
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NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

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	The purpose of the operation of the 0.63 Mathe existing bench-scal Company. These experiments operated in support of will include: testing Miniplant; sampling thants; characterization range of variables with the regenerator; and or regenerator over a wide address technical quest helping EPA to complete combustion process.	W (equivaler le experiment le experiment le continuous crange of continuous and professions are professions and professions are professionally and professions are professions and professions are professions are professions and professions are professions and professions are professions are professions are professionally and professions are professions are professions are professionally and professions are professionally and professions are professionally are professionally are professionally and professionally are professionally ar	nt) fluid equative streamiplan sorber the boltm	uidized-bed couipment at Extended built under lized-bed combo particulates ms for a wide t sorbent regulation ench-scale fluons to guide tareas. This seconded but the seconded	ombustion Mikon Research EPA sponsors ustion programmer of variety of enerator per n between the uidized-bed the Miniplan study will p	Iniplant and of and Engineering whip, would be sam. The effort vice on the potential pollutionance over a secombustor and combustor and at program and to play a key role in
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RESEARCH GRANT FUNDS OBLIGATED F.Y.

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

STARTING DATE

Sept. 76 (Est.)

ESTIMATED COMPLETION
DATE
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NOTICE OF RESEARCH PR	PROJECT NO. (Do not use this space) SSIE				
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TLE OF PROJECT Comprehensive Analysis of Emissi	ons from an Atmosph	neric Fluidized-Bed Combustion			
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AME AND ADDRESS OF APPLICANT INSTITUTION Battelle Columbus Laboratories 505 King Avenue					
Columbus, Ohio 43201					
UMMARY OF PROPOSED WORK - (1) Objectives, (2) App In the Smithsonian Science Information Exchange, summ orting research and are forwarded to investigators who req	aries of work in progress are ex-	changed with government and private agencies sup-			
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\$73,950

FUNDS OBLIGATED F.Y.

NO. OF FUTURE YEARS TENTATIVELY

STARTING DATE

Sept. 1975

ESTIMATED COMPLETION DATE March 1976

U.S. ENVIRONMEN	TAL PROTECTION	AGENCY		B.	orm Approved
					3 No. 158-R0081 o not use this space)
NOTICE OF R	RESEARCH PRO.	IECT		SSIE	o not use this space)
PREPARED FOR THE SMITHSON	EPA 77A	AN			
TITLE OF PROJECT Comprehen	siye Analyşi	s of Emis	sions	from the CPU-400	Fluidized-Bed
GIVE NAMES, DEPARTMENTS, AND OFF	n Onit Burnin	d Coar			
PROFESSIONAL PERSONNEL ENGAGED Mr. Kenneth E. Phillip		·			
Mr. Harold E. Stoner	75				
Mr. Michael A. O' Ha	aan				
Wit. Witchael A. O lia	gan				
NAME AND ADDRESS OF APPLICANT IN	ISTITUTION				
Combustion Power Co.					
1346 Willow Road					
Menlo Park, Calif. 9	4025				
SUMMARY OF PROPOSED WORK - (1) OF In the Smithsonian Science Information porting research and are forwarded to invest	Exchange, summarie	s of work in p	rogress are	exchanged with government	and private agencies sup-
The CPU-400 Prod	ress Develor	ment IIn	it. buil	t by EPA to burn r	nunicipal refuse
in a pressurized fluidi					
fall of 1975 under ERD					
outlet gas stream and					
and to perform a comp					
ments.				-	
·				D C- (CDC)	\
Under the initial-					
necessary sampling ed					
contract (with CPC or	with another	organiza	ation),	samples will be o	offected and
analyses performed.					
The comprehensiv	e analysis w	rill inclu	de cons	sideration of all p	otential pollutants
in appropriate streams	s, and will in	clude bi	ologica	al testing of selec	ted samples.
·					
•					
IDENTIFY PROFESSIONAL SCHOOL INV	OLVED (Medical.	SIGNATURE	OF PRINC	IPAL INVESTIGATOR	DATE
dental, etc.)	, , , , , , , , , , , , , , , , , , , ,				
					17 Sept. 1975
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SUPPORT METHOD (Check one)	TASK NO.	PR	OJECT OF		
AGENCY STAFF (Intramural)	-	ar.	SPONSIBLE	Ienschel E ORGANIZATION	
X NEGOTIATED CONTRACT RESEARCH GRANT	2	"	IERL/R	TP - EACD - APB	/ EPA
	FUTURE YEARS TE	NTATIVELY	·····	STARTING DATE	ESTIMATED COMPLETION

\$50,670

75

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

June 1975

ESTIMATED COMPLETION DATE June 1976

U.S. EN RONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do not use this space) SSIE
FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAN

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

Test Rig, Design and Construction of a Fluidized-Bed Coal Combustion Sampling and Analytical GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

C.C. Lii, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

INTERIM

TITLE OF PROJECT

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 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:

- Comprehensive analysis of emissions from fluidized-bed combustors.
- Testing of alternative sampling and analytical procedures for fluidizedbed combustion.
- Investigation of alternative add-on environmental control devices for fluidized combustion systems.

In this new coal utilization technology, coal is burned in a fluidized-bed of non-combustible material, usually an SO2-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.

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	U.S. ENVIRONMEN	TAL PROTECTION	AGENCY				orm Approved No. 158-R0081					
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TITI		ampling and										
GIV	Assessment of Fluidized Bed Combustors IVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER											
	FESSIONAL PERSONNEL ENGAGED					• . =						
NAM	ME AND ADDRESS OF APPLICANT IN	STITUTION										
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	MARY OF PROPOSED WORK — (1) Ob In the Smithsonian Science Information ing research and are forwarded to inves	Exchange, summarie	s of work	in progress are	exchanged with	government a	nd private agencies sup-					
	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.											
	The program will associated with the dethe effluent streams, environmental assess preferred procedure fo technology or minor exbe limited to: samplinand solids) and analyticompounds; particulat	evelopment o and the strea ment. This i r each FBC a xtension ther ng (of gases tical procedu	of FBC am con informa ipplica reof. ' entrai ires (fo	processes ditions whation will tion, base These recorded aerose or gaseous	s to identi hich will i be utilize ed upon co ommendati ols, organ s, liquid,	fy the in be sampled to rec- urrent sa ions will nics, fuc- and sol	led as part of an ommend the ampling/analytical linclude, but not gitive emissions,					
	NTIFY PROFESSIONAL SCHOOL INVO al, etc.)	OLVED (Medical,	SIGNATU	RE OF PRINCI	PAL INVESTIG	ATOR	DATE					
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X	NEGOTIATED CONTRACT	2			ORGANIZATION TO THE STREET OF							
	RESEARCH GRANT			IPVP - V	AIF, IFD,	LIVID						

67,874

FUNDS OBLIGATED F.Y.

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

Unknown

STARTING DATE 7/29/75

ESTIMATED COMPLETION

1/31/76

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77AAN

TITLE OF PROJECT

Effect of Experimental Scale on Emissions from Fluidized-Bed Combustion Unit

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

Mr. A.C. Doumas

NAME AND ADDRESS OF APPLICANT INSTITUTION

Texas Division

Dow Chemical USA

Freeport, Texas 77541

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 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:

- 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;
- b) the predicted magnitude of the effect of scale for each pollutant, and the basis for predicting such an effect;
- c) the reliability with which the effect can be predicted, and thus the importance of obtaining data on a larger scale; and
- d) the scale on which data would be required to allow accurate prediction of emissions at commercial scale.

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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNAT	ature of principal investigator Date 17 Sept. 1975					
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SUPPORT METHOD (Check one) TASK NO.			TASK NO.	· PROJECT OFFICER			,		
	AGENCY STAFF (Intramural)				D.B. Henschel				
х	NEGOTIATED C	ONTRACT	-	2			E ORGANIZATION	/ - D x	
	RESEARCH GRANT				IERL/RTP - EACD - APB / EPA				
\$52,510 75				ELY	August 1975	ESTIMATED COMPLETION DATE February 1975			

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77 AAO
TITLE OF PROJECT Experimental and Engineering Support of the Fluidized Be	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	OR PROJECT DIRECTORS AND ALL OTHER
Project Manager - Dr. D. L. Resirns, Mgr., Fluidize	od Rad Furingering Research
Project Manager - Dr. D. L. Realine, Mgt., Florenza	The state of the s
The state of the s	
NAME AND ADDRESS OF APPLICANT INSTITUTION	
Westinghouse Rosearch Labs	
Beulah Road	
Pittsburgh, PA 15235	· · · · · · · · · · · · · · · · · · ·
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or P in the Smithsonian Science Information Exchange, summaries of work in progress are exch porting research and are forwarded to investigators who request such information. Your summ	nanged with government and private agencies sup- nary is to be used for these purposes.
The contractor will provide experimental and engineeriz	
EPA program to develop environmental controls for fluid	lized bed combustion processes.
The work includes development of environmental control	utilizing calcium-based SO2
_control sorbents, development of environmental control	utilizing alternative sorbents
for SU2 control, investigation of ${ m NO}_{ m X}$ emissions, control	ol of particulate emissions,
control of trace element emissions, disposition of ash	
general engineering support. The contractor will condu	
engineering studies. The program will extend previous	
Westinghouse in all of the areas identified. The progr	
operating data on a variety of fluidized bed combustion	
programs and test alternative system components, provide	
existing and proposed plants, and provide evaluation of	rest data.
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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNAT	URE OF PRINCIPAL INVESTIGATOR	DATE
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٠	SUPPORT METHOD (Check of	ne) TASK NO.		PROJECT OFFICER	125
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EPA Ferm 5760-1 (7-72) REPLACES PHS FORM ICS AND SI-SIE 76A WHICH MAY NOT BE USED.

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77 AAO
TITLE OF PROJECT CAFB Engineering Support	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	OR PROJECT DIRECTORS AND ALL OTHER
S. L. Rakes, Project Officer	
NAME AND ADDRESS OF APPLICANT INSTITUTION	
Interim	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or F In the Smithsonian Science Information Exchange, summaries of work in progress are exch porting research and are forwarded to investigators who request such information. Your summ	hanged with government and private agencies sup-

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:

- 1. Sulfur Removal System: Sorbent selection, sorbent disposal, environ. impact and sulfur recovery are subtasks under the first task.
- 2. Alternative Concepts: Alternative sorbents, fuels, applications, processes, and alternative design and operating concepts are subtasks under this task.
- 3. Environmental Control Technology Evaluation and Development: Waste gas cleaning, waste water control, waste solids treatment are subtasks.
- 4. Environmental Impact for Off-design Conditions.
- 5. Multi-Media Emissions and System Evaluation.
- 6. Program Assistance to IERL.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNATU	RE OF PRINC	DATE				
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	FOR OFFICE USE ONLY								
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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77AAO													
TITLE	OF PROJECT Demonstrat	ion of CAFR Atr	nospheric Gas	ifier	for G	eneratio	n of a Clean Fuel						
_ Gas	from Residual Oil f	or Use in a Ext	isting (or Ne	w) Co	mbusto	r							
PROF	NAMES, DEPARTMENTS, AND O ESSIONAL PERSONNEL ENGAGE	FFICIAL TITLES OF PI ED IN THE PROJECT,	RINCIPAL INVESTIG	ATORS	OR PROJ	ECT DIRECT	DRS AND ALL OTHER						
INT	INTERIM - Final expected Jan. 76.												
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NAME	AND ADDRESS OF APPLICANT	INSTITUTION											
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SUMM.	ARY OF PROPOSED WORK - (1)	Objectives, (2) Approac	h. (3) Current Plans a	nd/or P	rogress (2	00 words or le	ess. Omit confidential data).						
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U.S. ENVIRONMEN	TAL PROTECTION	AGENCY	F	orm Approved
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TITLE OF PROJECT			AMD	
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PROFESSIONAL PERSONNEL ENGAGED		RINGIFAL INVESTIG	ATORS ON PROJECT BIRECT	ORS AND ALL OTHER
S. L. Rakes, Projec	t Officer			
NAME AND ADDRESS OF APPLICANT IN	STITUTION			
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SUMMARY OF PROPOSED WORK — (1) Ob In the Smithsonian Science Information porting research and are forwarded to inves	Exchange, summarie	s of work in progress a	ire exchanged with government	and private agencies sup-
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assess the impact o environment.	f solid waste	e generated by	the CAFB process	on the
The tests to b waste and long term			itory analysis of t ed locations through	
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SUPPORT METHOD (Check one) AGENCY STAFF (Intramural)	TASK NO.		L. Rakes	
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			STARTING DATE	

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

Unknown

1/77

ESTIMATED COMPLETION DATE 1/78

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space
NOTICE OF RESEARCH PROJECT	SSIE
	EPA
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77 AAO
OF PROJECT	77 AAO

Residual Oil Disposition Status Report

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

J. Monk, Staff Scientist

NAME AND ADDRESS OF APPLICANT INSTITUTION

A. D. Little, Inc., Acorn Park, Cambridge, Mass. 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.

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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE	
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	FOR OFFICE USE ONLY								
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TITLE OF PROJECT Analytica Hazardous Substances		Include Compr	ehensive An	alysis of
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As a coordinated part	of the nati	onal program t	o develop e	nvironmentally
sound use of residual				
data support, includi and experimental inve				
effort is to provide				
residual oil samples,				
radionuclides and det				chnical
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(a) trace const	ituent analy	SIS		
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		include ident ytical results		f samples
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FUNDS OBLIGATED F.Y.

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

STARTING DATE

Feb. 76 (Est.)

ESTIMATED COMPLETION DATE

6/76

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				CIAL TITLES OF P IN THE PROJECT.	RINCIPAL	INVESTIGAT	ORS OR PROJECT DIREC	TORS AND ALL OTHER
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porti	ng research and ar	e forwarde	d to inves	tigators who request	such inform	nation. Your	summary is to be used for	hese purposes.
	EPA is o	levelor	ino ne	cessarv envi	ronment	al data	on the CAFB pro-	cess. This part
of		_	_	•				systems analysis
	_	_					effort bases;	•
								le the remainder
								also provide broad
	_						chnology area.	Factorial Control
	-	-	-	-				a) review of exist-
in				•		•		important pollu-
				_		-		cluding engineering
								efficiencies and
								andards; (c) iden-
								such information,
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IDEN	ITIFY PROFESSIO	ONAL SCH	OOL INVO	LVED (Medical,	SIGNATUR	RE OF PRINC	IPAL INVESTIGATOR	DATE
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NAME AND ADDRESS	OF APPL	ICANT INS	STITUTION			
GCA/Techno	ology :	Divisio	on, Burlingt	on Road, Bedfor	d, Mass. O	1730
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	uct a Proce		's Advocate"	Preliminary En	vironmenta	1 Assessment of the
Task 2 - Dete	rmine	the tes	sts which sh	ould be rund on	the ESSO	Unit.
Task 3 - Eval	uate t	he tes	ts made on t	he ESSO Unit		
Task 4 - Prepare a final report with recommendation to IERL-RTP for follow up on (1) ESSO Projects, (2) Demonstration, (3) Environmental Assessment lapse						
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	PROJECT NO	O. (Do not use this space)		
NOTICE OF RESEARCH PROJECT	SSIE			
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA	77AAO		
TITLE OF PROJECT Tochnical Somicaes in Air Pollution Sample Acquisition	on and Analy	vsis	:	

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

Dr. Gene Burns

NAME AND ADDRESS OF APPLICANT INSTITUTION TRW Systems Group

TRW, Incorporated One Space Park

90278 <u>Redondo Beach.</u> California

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 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.

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

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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE	
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	EPA's commitment to				
	nology applicable to	o coal gasifie	rs, coal	liquification,	chemical coal
	cleaning and indust	rial processes	has crea	ted a need to	evaluate the
	composition of proc	ess and efflue	nt stream	s for an exten	sive number of
	inorganic species.				
	sampling and analys	is of oxidized	inorgani	c forms; e.g.,	SO2, NO and
	metal oxides. Very	little effort	has been	directed towa	rds the evalua-
	tion and standardiz	ation of measu	rement te	chniques for r	educed inorgani
	compounds. This ef				
	tion of sampling an	d analysis pro	cedures f	or the complet	e range of in-
	organic species.				
	The purpose of this	effort is to	nrowide f	or the evaluat	ion davalonmen
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RESEARCH GRANT FUNDS OBLIGATED F.Y.

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

IERL-RTP/EPA

STARTING DATE

Apr. 76 (Est

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Processing and Conv. GIVE NAMES, DEPARTMENTS, AND OF PROFESSIONAL PERSONNEL ENGAGE	FICIAL TITLES OF PRINCH			
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For some pollutants these controls must	adequate contr	ol techno	logy may exist	however,
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or non-existent, and				
ones developed. The				
the needed control	technology; how	ever, the	se efforts are	proving inadequa
to meet the problems	s at hand. Als	o, whatev	er systems are	developed will
need a consistent ap	pproach to thei	r evaluat	ion which cons:	iders the total
environmental proble	ems and not tho	se of jus	t a single pol	lutant.
The goal of this pro	ject is to def	ine, deve	lop, evaluate a	and demonstrate
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treatment, processing	ng and conversi	on system	ıs.	
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U.S. ENVIRONMENTAL PROTECTION AGENCY

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NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

EPA-IAG-D5-E681-AH

TITLE OF PROJECT Support Studies of Pollutant and Waste Control in Fluidized-Bed Combustion/Regeneration Systems

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

William T. Harvey, Jr., ERDA, Project Director

D. Bruce Henschel, EPA, Project Officer

NAME AND ADDRESS OF APPLICANT INSTITUTION

Argonne National Laboratory 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.

- (1) Objectives to conduct the following studies
 - a. sorbent performance for SO2 control at bench scale
 - b. one-step and two-step regeneration at laboratory and bench scale
 - c. investigation of alternative regeneration schemes
 - d. effect of pretreatment and enchancement additive for sorbents
 - e. identification of alternate sorbents
 - f. mathematical model for SO_2 capture and NO_X formation
 - g. laboratory and bench scale studies of $NO_{\mathbf{X}}$ formation and emissions
 - h. techniques for NO_x emission reduction
 - i. characterize particulate emissions as functions of operating conditions
 - j. assess alternate size particulate cleanup systems
 - k. fate and control of trace element emissions
 - 1. disposal and utilization of spent sorbent
- (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.
- (3) Progress consists of near completion of bench combustor studies an velocities, feed methods and baffling; on fine particulate emissions characterization and on trace element emissions characterization.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A				SIGNATI	LINE OF PRINC	CIPAL INVESTIGATOR	1-27-76	
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	L ENGAGED IN THE PROJECT.	PRINCIPAL INVESTIGA	TORS OR PROJECT BIRE	CIORS AND ALL OTHER
Michael H. Farme	er	Franklin S	pooner	
Staff Advisor		Staff Cons	ulting Engineer	
Corporate Resear	rch Staff	Corporate	Research Staff	
Government Resear P.O. Box 101 SUMMARY OF PROPOSED W	and Engineering Co. arch Laboratory Florham Park, New ORK- (1) Objectives, (2) Approa	ch, (3) Current Plans an		
	e Information Exchange, summarie arded to investigators who reques			
Objectives	Assess the poter	ntial for Indus	trial Conservati	on.
			d gas consumptio	
	Assess the econ			
	Determine the d	emand		
	Assess environm			
	Determine and d	efine technical	requirements fo	r representative
	applications.			
Approach	Formulate Imple Collect data re Develop estimat time_frame fo Formulate deman	lative to systees of demand in selected scer	em requirements n 1978-2000	
Current Plan	Survey Coal use	rs		
			plementation by	coal users, non
	coal users	•	•	
	Examine represe	ntative potent	lal system users	based on economics
ASSISTED ASSISTED				
dental, etc.)	SCHOOL INVOLVED (Medical,	SIGNATURE OF PRINC	CIPAL INVESTIGATOR	DATE
None		Michael Far	nor	August 27, 1975
HOLLE	E0			1148400 27, 2773
SUPPORT METHOD (Che		PROJECT OF	FICER	
AGENCY STAFF (Introm		Willi	am J. Murtyn	
X NEGOTIATED CONTRA			E ORGANIZATION	
RESEARCH GRANT		FEA-		
FUNDS OBLIGATED F.Y. \$300 K Base	NO. OF FUTURE YEARS TE ASSURED BEYOND CURREN	NTATIVELY	STARTING DATE	ESTIMATED COMPLETION
\$300 K Base \$71 K Energy 75			2/75	3/76

3/76

U.S. ENVIRONMEN	TAL PROTECTION AGE	ENCY		rm Approved No. 158-R0081
		_	PROJECT NO. (Do	not use this space)
NOTICE OF R	ESEARCH PROJEC	<u>. T</u>	SSIE	
PREPARED FOR THE SMITHSONI			EPA-IAG-D5-	'
TITLE OF PROJECT Cost Compari Power Plants to a Conven	son of Commerc	ial Pressurize	d and Atmospheri	c Fluidized-Bed
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF PRIN	ced Power Plant	with Flue Gas D	esulfurization PRS AND ALL OTHER
John T. Reese, Chemical H	Engineer			
Power Research Staff				
503 Power Building				
Chattanooga, TN 37401				
(615) 755-2884 NAME AND ADDRESS OF APPLICANT IN	STITUTION	·····		
Tennessee Valley Authorit	ΣV			
Knoxville, Tennessee	-0			
SUMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information porting research and are forwarded to inves	Exchange, summaries of	work in progress are ex	changed with government a	nd private agencies sup-
The objective of this pro	ject is to com	pare the comme	rcially projected	l costs of
both atmospheric and pres				
conventional coal-fired a	steam power pla	nt utilizing f	lue gas desulfur:	ization.
Mho annuach includes.	"1\ ==+shld=h			
The approach includes: (
power plant; (2) developm				
plant; (3) comparison of		-	_	AS results will
provide conceptual design	i and cost esti	mates for the	ituid-bed cases.	
Current plans include: (estimates; (2) identifica				
(3) definition of flue ga	s scrubber des	ign criteria.		
		_		
1				
IDENTIFY PROFESSIONAL SCHOOL INV	OLVED (Medical. SIG	SNATURE OF PRINCIP	AL INVESTIGATOR	DATE
dental, etc.)	,/	SNATURE OF PRINCIP	\mathcal{O}_{\cdot}	8/13/75
N/A	ļ	John J.	Klese	V/±3/17
	FOR O	FICE USE ONLY		
SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFI		
AGENCY STAFF (Intramural)	1		Reese	
X NEGOTIATED CONTRACT	3	RESPONSIBLE		
RESEARCH GRANT		Power Rese	earch Staff, TVA	

FUNDS OBLIGATED

150 K

1975

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

STARTING DATE

June 1975

ESTIMATED COMPLETION DATE

November 1976



SYNTHETIC FUELS

		U.S ENV	(FRONMEN	TAL PROTECTION	AGENCY	.,			orm Approved	
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		ноти	CE OF F	RESEARCH PROJ	ECT			PROJECT NO. <i>(De</i> SSIE	o not use this spac	;e)
	PREPARED F	OR THE	MITHSON	IAN SCIENCE INFOR	MATION EX	CHANGE		77AAP		-
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	Austin, T		SK DIV	4.						
SUN			K - (1) O	bjectives, (2) Approac	h, (3) Curre	nt Plans and	d/or Progre	ss (200 words or le	ss. Omit confider	ntial data).
port				Exchange, summaries stigators who request						es sup-
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	SUPPORT METHO	DD (Check	опе)	TASK NO.	OFFICE U	SE ONLY ROJECT OF	FICER			
	AGENCY STAFF				'	W.J. F				
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	RESEARCH GRA	NT				IERL-R	RTP, EAG	CD, FPB/E	EPA	
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	\$42,700	75		1			Jan	. 1975	Dec.	1975

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158•R0081
NOTICE OF DECEARCH DROJECT	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAP

TITLE OF PROJECT ...

Environmental Symposium on Synthetic Fuels

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

Frank Ayer - Principal Investigator

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.

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.

- 1. Work in conjunction with EPA in determining conference site/location.
- 2. Prepare and send out invitations for papers (using EPA suggested topics and people).
- 3. Prepare, print and send out agenda (agenda to be based on similar symposium held in May 1974).
- 4. Prepare and send out invitations to attendees.
- 5. Conduct all correspondence with speakers and attendees.
- 6. Perform all registration requirements such as name tags, attendee list and substitutions, programs, etc.
- 7. Obtain paper pre-prints and distribute.
- 8. Coordinate and assist in lodging and transportation but prime responsibility belongs to the individuals. (Payments for lodging and transportation are attendees responsibility.)
- 9. Contractor will identify audio visual equipment requirements.
- 10. Actual operation and coordination of all conference activities (requires contractor personnel on-site during conference). This includes operation of audio visual equipment.
- 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.

	NTIFY PROFESSIONAL, etc.)	ON'AL SCI	HOOL INV	OLVED (Medical,	SIGNATI	JRE OF PRINC	CIPAL INVESTIGATOR	DATE	
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	RESEARCH GRA	NT				IERL-I	RTP, EACD, FPB	EPA	
	DS OBLIGATED I K Base 55 K Energy	75	NO. OF	TUTURE YEARS TO BEYOND CURRE 1	ENTATIVE NT F.Y.	LY	STARTING DATE May 1975	Jan. 197	

EPA Form 5760-1 (7-72)

U.S. ENVIRONMENTAL PROTECTION AGENCY	• Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAP
Environmental Evaluations of Synthetic Fuels	
Environmental Evaluations of Synthetic Fuels IVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR ROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	S OR PROJECT DIRECTORS AND ALL OTHE
Environmental Evaluations of Synthetic Fuels GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. John Cleland - Principal Investigator	S OR PROJECT DIRECTORS AND ALL OTHE
Environmental Evaluations of Synthetic Fuels IVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. John Cleland - Principal Investigator	S OR PROJECT DIRECTORS AND ALL OTHE
Environmental Evaluations of Synthetic Fuels SIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATOR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. John Cleland - Principal Investigator HAME AND ADDRESS OF APPLICANT INSTITUTION	S OR PROJECT DIRECTORS AND ALL OTHE

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 the following subtasks:

- Physical and chemical coal cleaning documentation (literature studies, etc.)
- 2. Survey and evaluation of specific pollutants from clean fuels processes
- 3. Reporting and presentations in the area of coal characterization
- 4. Computer processing of coal data
- 5. Synthetic fuel related pollutant studies; general program support

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)				SIGNATURE OF PRINCIPAL INVESTIGATOR DATE				
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FUN	\$43,800	F.Y. 75		FUTURE YEARS TO BEYOND CURRE		LY	STARTING DATE 11 Aug. 1975	ESTIMATED COMPLETION Feb. 1976

U.S. ENVIF	RONMENTAL PROTECTION AGENCY		D .	m Approved
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PREPARED FOR THE SM	ITHSONIAN SCIENCE INFORMATION	EXCHANGE	77AAP	
TITLE OF PROJECT				****
Environmental As	sessment of Low BTU	Gasifica	ation and its U	tilization
PROFESSIONAL PERSONNEL EN	ND OFFICIAL TITLES OF PRINCIPA IGAGED IN THE PROJECT.	AL INVESTIGATO	DRS OR PROJECT DIRECTO	RS AND ALL OTHER
	Interim - final	expecte	d Mar. 76	
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NAME AND ADDRESS OF APPLI	CANT INSTITUTION			
s.				
	 (1) Objectives, (2) Approach, (3) C formation Exchange, summaries of work 			
	d to investigators who request such in			
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	gy. However, it is of fuel conversion r			
considerations of	or ruer conversion i	iot be ig.	noted or negree	red.
In order that th	e most efficient ar	d enviro	nmentally accep	table systems
	is necessary that			
	systems being deve			
	le the basis for dei			
	vironmental safeguar	ds prior	to a fuel conv	rersion
system's commerc	clalization.			
The nurnose of t	his project is to s	set-up an	d carry out the	necessarv
	ions for obtaining			
	systems and to acti			
through sampling	g and analysis.			
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dental, etc.)				
- CURRET		PROJECT OF	FICER	
SUPPORT METHOD (Check			m J. Rhodes	
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RESEARCH GRANT	2	RTP / 1	EPA	
FUNDS OBLIGATED F.Y.	NO. OF FUTURE YEARS TENTATIV	/ELY	STARTING DATE	ESTIMATED COMPLETION
\$50 K Base	ASSURED BEYOND CURRENT F.Y.		n 1 34 /- 1	12/77
\$755 K Energy 75			Feb. 76 (Est.) · · · · · · · · · · · · · · · · · · ·

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	TLE OF PROJECT		_	- Leave - Leav	
E	nvironmental A	ssessment of Hi	gh BTU Gasif	ication	
		AND OFFICIAL TITLES OF I ENGAGED IN THE PROJECT.		ATORS OR PROJECT DIRECT	ORS AND ALL OTHER
		Interim -	final expec	ted May 76	
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NA	ME AND ADDRESS OF APPL	ICANT INSTITUTION			
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	In the Smithsonian Science It	nformation Exchange, summarie	es of work in progress at	nd/or Progress (200 words or lete exchanged with government is summary is to be used for the	and private agencies sup-
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I	In order that t	he most efficie	nt and envir	onmentally acce	ptable systems
				mentally relate	
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Apr. 76 (Est.)

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CIVE				cterization	PINCIPAL INV	FOTICAT				
				IN THE PROJECT.	RINCIPAL INV	ESTIGAT	OKS OR PROJE	CI DIRECTO	HS AND ALL OT	IER
	Translat Ci	114	D							
	Harold G	luskot	er - Pi	rincipal Inve	stigator					
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NAME	e and address o Universit			State Geolo	ogical Sur	vey)				
	Natural R	esour	ces Bu	ildin g						
	Urbana,	Illinoi	s 618	01						
Ιt	n the Smithsonian	Science In	formation	jectives, (2) Approac Exchange, summarie tigators who request	s of work in pro	gress are	exchanged with	government a	nd private agencie	ial data). s sup-
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X	NEGOTIATED CO	····		4 1	1		IP, EACD,		PA	į
FUN	RESEARCH GRAI	F.Y.	NO OF	FUTURE YEARS TE			STARTING DAT	· · · · · · · · · · · · · · · · · · ·	ESTIMATED COL	MPLETION
. 5,41	\$87,400	75	ASSURE	BEYOND CURREN	IT F.Y.	,	27 June		June 1	1

U.S. SNVIRONMEN	TAL PROTECTION AGENC	Y		orm Approved 3 No. 158-R0081
				o not use this space)
NOTICE OF F	ESEARCH PROJECT		SSIE	o not use this space,
PREPARED FOR THE SMITHSON	IAN SCIENCE INFORMATIO	N EXCHANGE	77AAP	
TITLE OF PROJECT Mineral Matter in Coal				,
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED Harold J. Gluskater, G.	IN THE PROJECT.	AL INVESTIGA	TORS OR PROJECT DIRECT	ORS AND ALL OTHER
,	U			
NAME AND ADDRESS OF APPLICANT IN	ISTITUTION			
Univ. of Illinois - State	Geological Survey	7		
Natural Resources Bldg.				
Urbana, Ill. 61801				
SUMMARY OF PROPOSED WORK - (1) O In the Smithsonian Science Information porting research and are forwarded to inve	Exchange, summaries of wo	k in progress are	exchanged with government	and private agencies sup-
Data are needed to d	atammina tha fata	of the po	tontially hazardou	ie trace com-
ponents of coal during cl				
gasification, and during	direct combustion	From the	ic more affective	environmental
controls may be developed	to limit the qua	titiee and	is, more effective	emissions.
controls may be developed	to milit the quan	icicies am	refrects or these	· Cingo Dao III ·
This study is concer	ned with the date	rmination (of the distribution	on of inorganic
constituents in coal. The				
T		_	-	
potentially hazardous ino				
to be employed include, b				
fluorescence, atomic abso	tption, scanning	erection m	icroscope, neutro	activation
analysis, etc.				
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SUPPORT METHOD (Check one)	TASK NO.	PROJECT OF		
AGENCY STAFF (Intramural)	_		am J. Rhodes	
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75

9/15/75

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U.S. ENVIRONMENTAL	PROTECTION AGENCY			rm Approved No. 158-R0081
NOTICE OF RESI	EARCH PROJECT		PROJECT NO. (Do	not use this space)
PREPARED FOR THE SMITHSONIAN	SCIENCE INFORMATION	EXCHANGE	EPA 77AAP	
TITLE OF PROJECT				
Shale Oil Environmental	<u>Assessment and</u>	<u>d Data Acquisit</u>	ion	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL PROFESSIONAL PERSONNEL ENGAGED IN 1	L TITLES OF PRINCIPA THE PROJECT.	L INVESTIGATORS OR	PROJECT DIRECTO	RS AND ALL OTHER
L.G. Neal - Principal I	nvestigator			
NAME AND ADDRESS OF APPLICANT INSTIT		On continue		
TRW Transportation and	ruanonmentar (perations	•	·
One Space Park	-1- 00070			
Redondo Beach, Califor		Plane 1/ =		
SUMMARY OF PROPOSED WORK — (1) Object In the Smithsonian Science Information Exc porting research and are forwarded to investiga	hange, summaries of work	in progress are exchange	ed with government as	nd private agencies sup-
The major objective background data on the resources; a comparative evaluation of technologiemissions.	principal indust e assessment of	rial shale recov their environm	very process iental accepta	and U.S. shale ability and the
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dental, etc.) N.A.				17 Sept. 1975
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AGENCY STAFF (Intramural)		L. Lorenzi,		
X NEGOTIATED CONTRACT	7	RESPONSIBLE ORGAN	,	EPA
RESEARCH GRANT		IERL-RTP, E	ACD, FPB /	***

75

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

STARTING DATE

28 May 1975

ESTIMATED COMPLETION DATE

May 1978

	U.S. ENVIRONMEN	TAL PROTECTION	AGENCY		4	orm Approved 3 No. 158-R0081			
	NOTICE OF R	SSIE	o not use this space)						
	PREPARED FOR THE SMITHSONI	AN SCIENCE INFO	RMATION	EXCHANGE	77A	AP			
TIT	Preparation of Enviro	nmental Asse	essme	nt Procedure	s				
NAM	Preparation of Enviro E NAMES, DEPARTMENTS, AND OFF DFESSIONAL PERSONNEL ENGAGED Dr. Gene Burns ME AND ADDRESS OF APPLICANT IN TRW Systems Group TRW, Incorporated One Space Park Redondo Beach, Cali MARY OF PROPOSED WORK - (1) OF In the Smithsonian Science Information	ICIAL TITLES OF IN THE PROJECT. STITUTION fornia 90278 bjectives, (2) Approa Exchange, summarie	Ch, (3) Cu	urent Plans and/or in progress are exc	Progress (200 words or le	ess. Omit confidential data). and private agencies sup-			
	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.								
	NTIFY PROFESSIONAL SCHOOL INVO al, etc.)	OLVED (Medical,	SIGNATI	RE OF PRINCIPAL	- INVESTIGATOR	DATE			
	N.A.					17 Sept. 1975			
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EPA Form 5760-1 (7-72)

\$49,792

FUNDS OBLIGATED

75

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

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

Unknown

STARTING DATE

6/12/75

ESTIMATED COMPLETION DATE 12/12/75

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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE U.s. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE EPA 77AAP.

TITLE OF PROJECT

Environmental Evaluation of Fossil Fuel Conversion Processes

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

W.J. Rhodes, 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.

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:

- 1. each process area or type of equipment affected
- 2. a general description of each operation
- 3. the likelihood, frequency and duration of occurence
- 4. the location of pollution source
- 5. the potential pollutants
- 6. estimate of pollutant quantities
- 7. possible control mechanisms and effectiveness.

The information reported shall be nonprocess specific; however, where information is readily available for specific processes, it shall also be included.

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NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do not use this space) SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77AAP
TITLE OF PROJECT Water Conservation and Pollution Control and Liquefaction	

Ronald F. Probstein - Project Director

NAME AND ADDRESS OF APPLICANT INSTITUTION
Water Purification Associates
238 Main Street

PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

Cambridge, Massachusetts 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.

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.

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resources produced for such an evaluation	rom the con	version sys	tems. This s	tudy would provide
for insuring the sour	nd environm	ental utili	rry derrhe er zation of fue	lective programs
by-products. Approp	riate devel	opment effo	rts to suppor	t effective
environmental utiliza	ation would	be conduct	ed.	
IDENTIFY PROFESSIONAL SCHOOL INV	OLVED (Modical	SIGNATURE OF BRIN	CIPAL INVESTIGATOR	
dental, etc.)	OLVED (Medical,	SIGNATURE OF FRIN	CIPAL INVESTIGATOR	DATE
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EPA Form 5760-1 (7-72)

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STARTING DATE

Jan. 76 (Est

ESTIMATED COMPLETION DATE

U.S. ENVIRONMEN	TAL PROTECTION	AGENCY			rm Approved No. 158-R0081
NOTICE OF R	ESEARCH PRO		PROJECT NO. (Do SSIE	not use this space)	
PREPARED FOR THE SMITHSONI	IAN SCIENCE INFO	RMATION E	XCHANGE	77AAQ	
Development of Technolog	gy for Demet	allizati	ion and De	nitrification of C	oil
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF	PRINCIPAL	INVESTIGATOR	S OR PROJECT DIRECTO	RS AND ALL OTHER
W.J. Rhodes, Project Off	icer				
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INTERIM					
SUMMARY OF PROPOSED WORK - (1) OF In the Smithsonian Science Information porting research and are forwarded to inve	Exchange, summari	es of work i	n progress are ex-	changed with government a	nd private agencies sup-
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Catalyst/supports w determine which combina					than 15 days to
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The most promising liquefaction process dev		be eva	luated on	synthetic oils ob	tained from
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Invitro Cytotoxicity Te GIVE NAMES, DEPARTMENTS, AND OF PROFESSIONAL PERSONNEL ENGAGES	FICIAL TITLES OF PRIN	Assessment S	Samples TORS OR PROJECT DIRECT	ORS AND ALL OTHER
Dr. Michael Waters HERL-RTP				,
NAME AND ADDRESS OF APPLICANT I	NSTITUTION			
Northrop Services, Inc. Huntsville, Alabama	·			
SUMMARY OF PROPOSED WORK - (1) O In the Smithsonian Science Information porting research and are forwarded to inve	a Excharge, summaries of	work in progress are	e exchanged with government a	ind private agencies sup-
The project will s cability of in-vitro cy Laboratory tests will b the test cells and prel collected from ten indu	totoxicity testi e conducted to d iminary dose-res	ng of energy letermine the sponse charac	percent viability	mples. $ackslash$
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	Interim - final e	xpected Mar	v 76	
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porting research and are forwarded to				
Petroleum refineries o	consist of a complex	of physica.	l and chemical tra	nsformation
operations. Many of t	_			9
been identified. Howe	ver, it has been rep	orted that	fugitive sources	may be the
principal emitters of				
problems and refinery				
will assist in refine				
may have definite cost	_		-	
attempt to define and				
assessment for applica				
effluent control with				
potential for emission				
Attention will be give operations expected to				
operations expected to	, utilize heavier ree	dstocks am	d to practiced con	troi tecimorogy.
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EPA Form 5760-1 (7-72)

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	r. Wyman Harrison and M nvironmental Scientists	c. Donald Mc(Cown				
Er	nergy and Environmental	Systems Divi	sion				
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	rgonne, Illinois	,1,9				*	
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	ith rare earths and dete			•			in 🦠
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	al, etc.)		Ma	man Harr	ism	Aug. 29	1975
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ESTIMATED COMPLETION DATE

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	E OF PROJECT							
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				CIAL TITLES OF P IN THE PROJECT.	RINCIPAL	INVESTIGAT	ORS OR PROJECT DIRECTO	RS AND ALL OTHER
Dr	. Wyman Har	rison,	Proje	ct Director				
Dr	Leo Rapha	elian,	Princ	ipal Investi	gator	(312) 739	9-7711 (x5277)	
Mr	s. Carol Ch	iow, Ch	emist					
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NAME	E AND ADDRESS	OF APPLI	CANT INS	STITUTION				
				Systems Divi	sion			
	gonne Natio			ory				
	gonne, Illi		60439					
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							summary is to be used for thes	
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2)	Take comp	posite	sample	es of				
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U.S. ENVIRONMEN	TAL PROTECTION A	GENCY		form Approved B.No. 158-R0081	
				o not use this space)	
NOTICE OF I	RESEARCH PROJE	СТ	SSIE		
PREPARED FOR THE SMITHSON	IIAN SCIENCE INFORM	NATION EXCHANGE	EPA-IAG-	-D5-E-727-FB	
TITLE OF PROJECT		4	3 1		
Residential Energy Consumption Geographical Analyses GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALTOGRAP PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. OCUGIAS Harvey, VP, Hittman Assoc., Inc., Columbia, MD 21405 Tel. 730-7800 Harry M. Bernstein, Mgr. Energy Utilization Dept., (same address & tel.) Taghi Alereza, Mech. Eng., Principal Investigator, (same address) James E. Reed, Engineer, (same address) Datrick Michael McCarthy, Civil Engineer (same address) Extractional Maryland State of Institution: HITTMAN ASSOCIATES, INC. 9190 Red Branch Road Columbia, Maryland 21045 Tel: Area Code (301)730-7800 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. You summary is to be used for these purposes. Qualify the impact of selected single-family and multifamily residence modification on residential energy consumption for different geographical areas. 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. The determinations will be made by a computer program that considers the ambient weather environment, calculates the heat gain or lost by					
radiation, conduction monthly, and yearly p				y, daily,	
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NOTICE OF	RESEARCH PRO.	JECT		SSIE	
PREPARED FOR THE SMITHSO			ANGE	77ADM:	
TITLE OF PROJECT Evaluation	of the Concen	trations o	f Plutonium	in Humans	
Residing Ne	ear the Rocky	Flats Nucl	ear Test Fa	cility	
E.W. Bretthauer-Acting Chenvironmental Monitoring P.O. Box 15027, Las Vegas (702) 736-2969 Ext. 281	ilef of the Me and Support L	thods Deve	lopment & A	nalytical Su	upport Branch
NAME AND ADDRESS OF APPLICANT Office of Research and De	NSTITUTION Evelopment				
Environmental Protection					
Washington, D.C. 20460					
300 living humans who have Task 2: Prove Task 3: Prove of analytical data. (3) Progress.	restigators who request of this study as vicinity of in humans restrom global fact selected to resided in ide plutonium attract for sample al information benver, CO. Interagency agrical Application tract has also samples. Following qualissue samples line Instrumer	ris to det the Rocky diding in a allout. cissues fro one of thr analysis of analysis of the collect has been reement for ions Center to been con lity assura by AFTAC, at Corporat	m 231 decease specified for and pronegotiated tissue ana (AFTAC), Polyale contraction and LFE	to be used for the ne concentral ar Facility of jected to posed humans at areas for numan tissue oles and qual eparation, a with the Ural tysis has be atrick Air for the Eberline Ir to be provided in the Ural duplice Environment	ations of plutonium are greater than plutonium contami- and fluids from at least 5 years. Blity assurance as well as the col- aiversity of the en negotiated force Base, astrument Corporation (a) Duplicate cate analysis of tal and (c)
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NEGOTIATED CONTRACT RESEARCH GRANT	01-03 -02	l			n & Development Div.
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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	77ADU
TITLE OF PROJECT Cooperate with ERDA to Reduce Adverse Enviro	nmental Effects from
Uranium Mill Wastes GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Mr. Donald W. Hendricks, Direc Richard Douglas Joseph Hans David Bernhardt	
NAME AND ADDRESS OF APPLICANT INSTITUTION Office of Radiation Pr Las Vegas Facility P.O. Box 15027 Las Vegas, Nevada 8911 SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Progr In the Smithsonian Science Information Exchange, summaries of work in progress are exchange porting research and are forwarded to investigators who request such information. Your summary	Telephone: 702-736-2969 4 ess (200 words or less. Omit confidential data), ed with government and private agencies sup-
The Energy Research and Development Administration, I Safety, with the cooperation and assistance of EPA and the taking an appraisal of about 17 inactive uranium ore mill States. The immediate objective is to provide to the Conglatures engineering studies and cost estimates for long-teradioactive wastes resulting from the milling operations. Programs, through its Las Vegas Facility provides technical for assessment of the impact of environmental radioactive these tailings sites. Technical reports defining the extended developed and will be provided to the ERDA architect assessing the cost of remedial action alternatives. Working levels of radon daughters in the environs of	Division of Operational e States involved, is under- ing sites in five Western gress and the State legis- erm stabilization of the The Office of Radiation al measurement capability contamination caused by ent of contamination are t-engineer for use in
Lake City, Utah, have already been provided to the State of Three technical reports on radon data and gamma surveys of sites are being prepared at this time. One report deals we data on three inactive uranium tailings piles to define the term. The second report presents ambient radon data around the second report presents ambient radon data around the second report presents ambient radon data around the second report presents ambient radon data around the second report presents ambient radon data around the second report presents ambient radon data around the second report presents ambient radon data around the second report presents ambient radon data around the second report presents are second reports.	f inactive uranium mill with radon exhalation he radon-222 source

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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					Donald W. Hendricks Donald W. Hendricks Donald W. Hendricks				
	FOR OFFICE USE ONLY								
SUPPORT METHOD (Check one) TASK NO.			TASK NO.		PROJECT OF	FICER			
x	AGENCY STAFF	(Intramura	al)		Don Hen		on Hendricks, 702-736-2969		
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FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS ASSURED BEYOND CURP				LY	STARTING DATE	ESTIMATED COMPLETION DATE			
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U.S. ENVIRONMENTAL PROTECTION AGENCY			Form Approved OMB No. 158-R0081	
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TLE OF PROJECT Environmental Assessment IVE NAMES, DEPARTMENTS, AND OFFI ROFESSIONAL PERSONNEL ENGAGED	IN THE PROJECT.	PAL INVESTIGATORS OR	PROJECT DIRECTORS	rgy Related Develo
or. Gilbert D. Potter, Ch 702-736-2969	iei, Exposure/Do	ose Assessment Br	ranch	
AME AND ADDRESS OF APPLICANT INS U.S. Environmental Protect Environmental Monitoring P. O. Box 15027, Las Vega	tion Agency and Support Labo	oratory		
JMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information orting research and are forwarded to inves	Exchange, summaries of we	ork in progress are exchang	ged with government and ;	private agencies sup-
OBJECTIVES: To assess po nuclides released from nu and reprocessing.	tential problems clear fuel cycle			
APPROACH: Assess current for study in human food c laboratory and field stud paseline studies at selec operative sites for monit	chainsoils, pla lies are to be ca cted preoperative	unts and animals arried out. Fiel sites for proje	(domestic and a	aquatic). Both to include
ACCOMPLISHMENTS: (1) A (2) planning documents fo for projected studies has				
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DENTIFY PROFESSIONAL SCHOOL INV ental, etc.)	OLVED (Medical, SIGN	Dellet &	. Letter	8/14/15
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SUPPORT METHOD (Check one)	TASK NO.	PROJECT OFFICER		
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RESEARCH GRANT

FUNDS OBLIGATED F.Y.

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

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ESTIMATED COMPLETION

6/79

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 INTERTM PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77ADW TITLE OF PROJECT Cost Risk Analysis of Control Technologies for Radionuclides Deposited ON LAND, Biota, Man, and Water Following a Nuclear Incident 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 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 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. 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-rems, 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. A contract to complete this project is currently under negotiation. IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL INVESTIGATOR DATE FOR OFFICE USE ONLY SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICER AGENCY STAFF (Intramutal) James M. Hardin 202-755-1188

NEGOTIATED CONTRACT

RESEARCH GRANT

\$150,000(Est.) 1975

FUNDS OBLIGATED F.Y.

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

RESPONSIBLE ORGANIZATION

STARTING DATE

October 1, 1975

Office of Radiation Programs, EAD / EPA

ESTIMATED COMPLETION

October 1, 1977

U.S. ENVIRONMENTAL PROTECTION AGENCY

INTERIM

NOTICE OF RESEARCH PROJECT

Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77ADX

TITLE OF PROJECT Assessment of Environmental Impacts on Air, Water, & Radioactive Waste Material from the Thorium/U-233 Fuel Cycle

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.

OUTPUT SUMMARY - 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.

MAJOR MILESTONES

- 1. Characterizations of the fission products generated in the Thorium/U-233 fuel cycle.
- 2. Report on planned releases & design parameters as they affect propagation chains through the air & water environment.
- 3. Description of clean up capabilities & system requirement of control technologies presently proposed or potentially applicable for treating the long-lived radionuclides in the waste streams.
- 4. Report on economic analysis of cost of employing control technology to reduce the waste to the lowest level practicable.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)					Available November 1975 DATE 9/12/75				
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July 1, 1975

June 30,1979

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77ADZ TITLE OF PROJECT 'Implementation of a Technology Assessment Methodology for Radioactive Waste Management' GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Dr. Stanley Logan 505-277-2849 Assoc. Prof. of Nuclear Eng. The University of New Mexico Albuquerque, New Mexico 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. 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. 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 longterm 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. Application of this technology assessment model by EPA is planned for the following (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. SIGNATURE OF PRINCIPAL INVESTIGATOR DATE IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, 9/11/75 Stanley Logan University of New Mexico FOR OFFICE USE ONLY PROJECT OFFICER TASK NO. SUPPORT METHOD (Check one) Stephen M. Goldberg RESPONSIBLE ORGANIZATION 201-755-4863

FUNDS OBLIGATED

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AGENCY STAFF (Intramural)

F.Y.

1975

NEGOTIATED CONTRACT

RESEARCH GRANT

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

Office of Radiation

ESTIMATED COMPLETION

Sept. 15, 1975

Programs, Tech. Assessment Division (AW-459)

STARTING DATE

Aug. 1, 1975

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Environmer	ital Protect	tion Agency,	Washington, D.	C. 20460		
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Dr. George A. Englesson, T	echnical Dire	ector.	(215) 422	2-3818			į.	
Dr. Michael C. Hu, Princip			(-10)					• '
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United Engineers & Constr	uctors Inc.						N	
1401 Arch Street Philadelphia, PA 19105			•					
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Beneficial Uses of Warm Water from GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLE PROFESSIONAL PERSONNEL ENGAGED IN THE PRO	M Condensei Es of Principa DIECT.	'S of Electric Linvestigators or	Generating P	ORS AND ALL OTHER
Principal Investigator: Landis L Experiment Station 55101 Tele: (612)	. Boyd, Ass 220 Coffey	istant Directo Hall, Univ. o	r, Minnesota f Minnesota,	Agricultural St. Paul, MN
Grant Director: Russell V. Stansf				
Northern States Power Company			. *	
414 Nicollet Mall				* .
Minneapolis, Minnesota 55401 SUMMARY OF PROPOSED WORK - (1) Objectives, (2)	Approach, (3) Cu	rrent Plans and/or Prom	rans (200 words or Is	one Omits confidential data)
In the Smithsunian Science Information Exchange, a porting research and are forwarded to investigators who	ummaries of work	in progress are exchang	ed with government	and private agencies sup-
(1) a. Evaluate the adequacy and as horizontal cooling towers having economically and reliably heating using heated water for energy.	ng potentia	l for income.	b. Demonstr	ate methods for
(2) The project will entail: (1) house) with an experimental heating cooling systems and installation heating systems, instrumentation, enterprise and evaluate all parts	ng and cool of instrume and the si	ing system. (entation. (3) cructure. (4)	2) Check-out Operate w/o Operate as a	of heating and crops to evaluate commercial type
(5) Make changes based on perform to this project.(6) Issue semi-(7) Develop contracts with growers of growth structures at the site new Sherburne County Generating P	ance and/or annual and s to provid following d	research deve annual reports le warm water a completion and	lopments condustriant plus frequent for the following the formal plus for the following of the following of the following of the following of the following of the following of the following of the following of the following th	ducted parallel nt news releases. their installation operation of the
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Form Approved
OMB No. 158-R0081

PROJECT NO. (Do not use this space)

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NOTICE OF RESEARCH PROJECT

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77ABC

TITLE OF PROJECT Water Conservation and Pollution Control Alternatives

In Coal Gasification and Liquefaction Processes

GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OF PROJECT DIRECTORS AND ALL OTHER

Principal Investigators - J. Goldstein

Senior Investigators - R.F. Probstein

PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.

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.

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.

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8/1/75

U.S. ENVIRON	MENTAL PROTECTION	AGENCY		Form Approved 18 No. 158-R0082
NOTICE C	OF RESEARCH PROJ	ECT	**************************************	Do not use this space)
			EPA	
PREPARED FOR THE SMITH		· · · · · · · · · · · · · · · · · · ·	77 470	
TITLE OF PROJECT Economic & Conservatio	n Aspects of Int	egrated Energy U	se Applications	•
GIVE NAMES, DEPARTMENTS, AND	OFFICIAL TITLES OF F	RINCIPAL INVESTIGATOR	S OR PROJECT DIREC	TORE AND ALL OTHER
PROFESSIONAL PERSONNEL ENGA	GED IN THE PROJECT.		S ON PROJECT DIREC	TORS AND ALL OTHER
Not yet selected.				
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NAME AND ADDRESS OF APPLICAN	IT INSTITUTION			
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SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approac	h, (3) Current Plans and/or	Progress (200 words or	less. Omit confidential data).
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	mijeres and request		imary is to be used for ti	nese purposes.
The project enta	ils the determin	ation of economic	and environme	ntal aspects
of supplying total ene	rev needs to lar	on load centers of	r compleyer T	he cost of
fuel, labor, materials	L. financina wi	li he mestulated	of complexes. I	ine cost of
idel, labor, materials	, & linancing wi	II be postulated	a the alternat	ives or central
vs conventional means	or multi-source	energy supply wil	l be compared	on the basis
of economics and envir	onmental benefit	S.		•
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X NEGOTIATED CONTRACT		RESPONSIBLE OF	GANIZATION.	
RESEARCH GRANT		IRRL Cine	innati/ EPA	
FUNDS OBLIGATED F.Y. NO. C	OF FUTURE YEARS TEN		RTING DATE	ESTIMATED COMPLETION

U.S. ENVIRONMENTAL PRUTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE EPA EPA

PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

77 ABC

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.

Victor W. Lambou

Environmental Protection Agency

Dr. David N. McNelis

EMSL-Las Vegas P.O. Box 15027

Las Vegas, NV 89114

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.

- (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.
- (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.
- (3) Current Plans/Progress. Award of contract is pending but anticipated to be executed 9/75.

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	IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)			SIGNATI	THE OF PHING	PAL INVESTIGATOR	DATE		
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	SUPPORT METHO	DD (Check	one)	TASK NO.		PROJECT OF	FICER		
	AGENCY STAFF (Intramutal)		Dr. David N. McNelis						
X NEGOTIATED CONTRACT 08			RESPONSIBLE ORGANIZATION Monitoring Operations Division		ons Division / EPA				
	RESEARCH GRA	NT				EMSL-La	s Vegas	one bryrbion,	
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	AN SCIENCE INFORMATION EXCHANGE	77ABC	
TITLE OF PROJECT			
Advanced Waste Heat Contro	ols - Waste Heat and Water I	Utilization	
GIVE NAMES, DEPARTMENTS, AND OFF PROFESSIONAL PERSONNEL ENGAGED	ICIAL TITLES OF PRINCIPAL INVESTIGAT	TORS OR PROJECT DIRECTO	RS AND ALL OTHER
_	mote Sensing Division, Remo	te Sensing Operati	one Branch
	vironmental Monitoring and		
34. 13 D	O. Box 15027	bupport Laboratory	,Las vegas
		Tel: (702) 726-29	60 AV+ 336
		161. (702) 720-29	09, ext. 330
NAME AND ADDRESS OF APPLICANT IN	STITUTION		
SUMMARY OF PROPOSED WORK - (1) OF	pjectives, (2) Approach, (3) Current Plans and	or Progress (200 words or les	ss. Omit confidential data).
in the Smithsonian Science Information porting research and are forwarded to inves	Exchange, summaries of work in progress are stigators who request such information. Your	exchanged with government a summary is to be used for the	nd private agencies sup-
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Perfect aerial infrared	survey techniques of major	thermal discharges	to develope
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dental, etc.)	apressino		_
1	Albert E. Pres	sman	
			Aug. 13, 1975
	FOR OFFICE USE ONLY		Aug. 13, 1975
SUPPORT METHOD (Check one)	FOR OFFICE USE ONLY TASK NO. PROJECT OF	FICER	Aug. 13, 1975
SUPPORT METHOD (Check one) *** AGENCY STAFF (Intramural)	TASK NO. PROJECT OF Albert E		Aug. 13, 1975 736-2969
	TASK NO. PROJECT OF Albert E RESPONSIBLE	E. Pressman (702) E ORGANIZATION	736–2969
X AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. PROJECT OF Albert F RESPONSIBLE EMSL-LV	E. Pressman (702) E ORGANIZATION Remote Sensing Di	736–2969
X AGENCY STAFF (Intramural) X NEGOTIATED CONTRACT RESEARCH GRANT	TASK NO. PROJECT OF Albert F RESPONSIBLE EMSL-LV FUTURE YEARS TENTATIVELY DESCRIPTION OF THE PROJECT OF	E. Pressman (702) E ORGANIZATION	736–2969

U.S. ENVIRONMENTAL PROTECTION A	GENCY	Form Approved OMB No. 158-R0081
NOTICE OF RESEARCH PROJ	PROJECT NO. (Do not use this space)	
PREPARED FOR THE SMITHSONIAN SCIENCE INFORM	EPA 77ABC	
HTLE OF PROJECT Perial Remote Sensor Data Collection, F	Processing and Ana	lysis for Environmental Konitoria
SIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PERFORMENTS. AND OFFICIAL TITLES OF PERFORMENTS.	RINCIPAL INVESTIGATORS	OR PROJECT DIRECTORS AND ALL OTHER
R.L.Proffit, Project Manager J.E. Novotny, Systems Engineering J. Duggan, Industrial P.I. V. Johnson, R. Costello, H. Coppedge	M. Gray, D. Wil	a Analysis Support lliams, L. Ozga nsor/Systems Operation
AME AND ADDRESS OF APPLICANT INSTITUTION Lockheed Electronics Company, Inc. 16311 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 multispectral 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.)				SIGNATURE OF PRINCIPAL INVESTIGATOR			DATE		
N/A				Prepared by Abu Bakar Jaafar			September 10,1975		
	FOR OFFICE USE ONLY								
SUPPORT METHOD (Check one) TASK NO.			TASK NO.	7	PROJECT OFFICER Albert E. Pressman				
X	AGENCY STAFF	(Intramur	al)	9	TESPONSIBLE ORGANIZATION		ert E. Fressman		
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	RESEARCH GRA	NT		NERC			A Cincinnati, Ohio	45200	
FUN C3	DS OBLIGATED	^F 75	NO. OF E	FUTURE YEARS TE D BEYOND CURRE O	ENTATIVE	LY .	STARTING PATE	ESTIMATED COMPLETION 11/10/75	

EPA Form 5760-1 (7-72)

U.S. ENVIRONMENTA	L PROTECTION	AGENCY			Form Approved MB No. 158-R0081
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PREPARED FOR THE SMITHSONIAN	SCIENCE INFOR	MATION E	XCHANGE	EPA-LAG-D	5-E721-BE
Advanced Waste Heat Contro	al.				
GIVE NAMES, DEPARTMENTS, AND OFFIC PROFESSIONAL PERSONNEL ENGAGED IN	IAL TITLES OF F	PRINCIPAL	INVESTIGATO	RS OR PROJECT DIREC	TORS AND ALL OTHER
Dr. Hollis B. Flora, II, C Fower Research Staff	hemical Eng	gineer			
524 Power Building					
Chattanooga, Tennessee 37	401 tel	Lephone	: 615/755	-2771	
NAME AND ADDRESS OF APPLICANT INST	TTUTION				
Tennessee Valley Authority Knoxville, Tennessee	•				
SUMMARY OF PROPOSED WORK - (1) Obje In the Smithsonian Science Information E. Porting research and are forwarded to investi	xchange, summarie	s of work i	n progress are ex	cchanged with governmen	nt and private agencies sup-
The objectives of this pro- reverse osmosis and ultraf to make them acceptable for be beneficially utilized to mental aspects of wet/dry Cherne Spray Thermal Rotor	iltration, or reuse; to o reduce in cooling tow	for red determingement	furbishing mine wheth ent; to ev	power plant deer one or more aluate the engi	ischarge waters mechanisms may ineering and environ
The approach includes: (losmosis and ultrafiltration plant waste streams suitable for reduction of fish impitower to evaluate the engitower.	n membranes le for recy ngement, ar	to der cle, (and (3)	termine the 2) studies studies on	eir ability to on the more pr a prototype we	render power romising mechanism et/dry cooling
Current plans include begi October 1, 1975.	nning labor	ratory	vork in the	e membrane tasl	caround
	<u> </u>	Taion: =:	75 OF SS:110:5	AL INVESTIGATOR	DATE
IDENTIFY PROFESSIONAL SCHOOL INVOL dental, etc.)	_VED (Medical,	1 .		AL INVESTIGATOR	DATE
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SUPPORT METHOD (Check one)	TASK NO.		PROJECT OFFI		
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X NEGOTIATED CONTRACT	1-3			earch Staff, T	<i>J</i> A
r		1	TOWER TIED		

FUNDS OBLIGATED

\$1,325

RESEARCH GRANT

F.Y.

1975

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

STARTING DATE

May 1975

ESTIMATED COMP. ETION DATE

March 1978

U.S. ENVIRONMENTAL PROTECTION	AGENCY	Form Approved OMB No. 158-R0081	
		PROJECT NO. (Do not use this space)	
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PREPARED FOR THE SMITHSONIAN SCIENCE INFO	RMATION EXCHANGE	EPA-IAG-D5-E721-BF	
TITLE OF PROJECT			en en en en en en en en en en en en en e
Waste Heat Utilization			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF I PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.			l .
Project Director: B. J. Bond, Asst.	Dir. of Div. of Agr	. Development* (ext. 418).	
Support personnel: C. E. Madewell, A	Agr. Economist. Agr.	Resource Dev. Branch* (ext	:. 743)
J. J. Maddox, Agriculturist, Agr. F	Resource Dev. Branch	^ (ext. /43). Branch* (ext. 202)	
J. J. Maddox, Agriculturist, Agr. F D. A. Mays, Agriculturist, Soils & R. S. Pile, Agricultural Engineer,	Agr. Resources Dev.	Branch* (ext. 743).	
NAME AND ADDRESS OF APPLICANT INSTITUTION	ngr. kebourees bev.	Drainen (CAL. 145):	
*Tennessee Valley Authority (Teleph	none 205-383-4631)		
Office of Agricultural and Chemical			
Muscle Shoals, Alabama 35660			
SUMMARY OF PROPOSED WORK – (1) Objectives, (2) Approa In the Smithsonian Science Information Exchange, summarie porting research and are forwarded to investigators who reques	es of work in progress are exchan	iged with government and private agencies su	data). 1p-
Task I. Soil heating to extend crop	orowing season inve	olves research to determine	the
feasibility of using waste heat to e			
crops. Preliminary soil heating tes			
looked encouraging. Soil-warming, o			
the yield of some vegetable crops ur	der field conditions	s. Further studies of the	
response of plants to warmed soil wi	ill be conducted uti	lizing discharged hot water	at
Muscle Shoals and/or the Waste Heat	Utilization Center	at Browns Ferry.	
Task II. Biological recycling of nu			
utilization of waste heat in the mar	-		-
conducted to determine if the nutrie			:ea
by aquatic plants, and to determine			The
source for beneficial marine animals recycling systems are being designed			The
on a limited land area with minimum			
from the liquified livestock waste b			
harvest by fish and other aquatic of		-	
protein supplement for livestock rat	······································		6
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None	B. J. Bond	Vi. 12 16	2,-
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SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFICER		
AGENCY STAFF (Intramural)	B. J. Bond		
X NEGOTIATED CONTRACT I & II	RESPONSIBLE ORGA		
RESEARCH GRANT	Tennessee Val	ley Authority icultural & Chemical Develo	am en f
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1975

May 7, 1975

June 1979

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PREPARED FOR THE SMITHSONIA	N SCIENCE INFOR	MATION	EXCHANGE	EPA 77AAJ			
TITLE OF PROJECT							
Environmental Assessm	ent of En	ergy S	Supply Sys	tems Using F	uel Cells		
GIVE NAMES, DEPARTMENTS, AND OFFI PROFESSIONAL PERSONNEL ENGAGED I	CIAL TITLES OF F	PRINCIPAL	- INVESTIGATORS	OR PROJECT DIRECT	ORS AND ALL OTHER		
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NAME AND ADDRESS OF APPLICANT INS	TITUTION						
SUMMARY OF PROPOSED WORK - (1) Ob In the Smithsonian Science Information porting research and are forwarded to invest	Exchange, summarie	s of work	in progress are excl	hanged with government :	and private agencies sup-		
Fuel cells and their	potential	as no	n-polluti	ng, energy-c	onserving		
power sources have ga	ined grea	t atte	ention in	recent month	s. When viewed		
alone, they are clear	er and mo	re ef	ficient th	an our prese	nt coal-fired		
power plants, automob							
is a <u>complete</u> energy efficient than altern							
costs comparable? The							
Using the information whether to support or or alternative energy	to recom	mend t	he develo				
For the purposes of t	hie etudy	an II	nerev eun	nly eyetem"	is a total		
system for supplying							
with a natural energy							
converts it into an i							
consumer, and there u							
energy end-product ca	in be heat:	ing, o	cooling, 1	ighting, mot	ive work via		
motors, etc.							
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dental, etc.)							
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AGENCY STAFF (Intramural)				J. Bunas			
X NEGOTIATED CONTRACT	2		RESPONSIBLE OF	RGANIZATION			

RESEARCH GRANT

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FUNDS OBLIGATED F.Y. \$50 K

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

IERL-RTP/ EPA

STARTING DATE

Mar. 76 (Est.)

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U.S. ENVIRONMENTAL PROTECTION AGENCY		Form Approved OMB No. 158-R0081	
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TITLE OF PROJECT	EXCHANGE	77AAW	
Environmental Assessment of Advanced			
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	. INVESTIGATORS OR PF	ROJECT DIRECTORS AND ALL OTHE	R
Interim - final	expected Ap	ri1 76	
NAME AND ADDRESS OF APPLICANT INSTITUTION			
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SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Cur In the Smithsonian Science Information Exchange, summaries of work is porting research and are forwarded to investigators who request such information.	n progress are exchanged	with government and private agencies s	
The purpose of this work is to provi a variety of advanced energy convers investigated include MHD, high temps cycle, potassium topping cycles, the	sion technolog crature gas to crmionics and	gies. Cycles to be urbines, the Feher thermogalvanics. E	fach
cycle will be evaluated for its impassolid waste disposal, and water and			
The end result of this program will assessment of each cycle and suggest nology which can be incorporated intenvironmental impact.	ions of appro	opriate control tech	_
This procurement requests proposals effort contract to environmentally a version cycles. The study will invostudies to evaluate the impact of eaquality. The study will also develor development of pollution control the cycles studied.	assess several plve both anal ach cycle on a pp programs pl	l advanced energy co lytical and field te air, water, and land lans for the applica	stin
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	RE OF PRINCIPAL INVE	STIGATOR DATE	
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X NEGOTIATED CONTRACT	RESPONSIBLE ORGANIZ	ZATION	
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NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y.

Mar.76(Est.)

ESTIMATED COMPLETION

June, 1985

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	vironmental Assessment							
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FRO	PESSIONAL PERSONNEL ENGAGED	IN THE PROJECT.						
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NAM	E AND ADDRESS OF APPLICANT IN	STITUTION						
NAM	E AND ADDRESS OF APPLICANT IN	SITIUTION						
SUM	MARY OF PROPOSED WORK - (1) OF	ojectives, (2) Approa	ch, (3) Cu	rrent Plans and/or I	Progress (200 words or le	ess. Omit confidential data).		
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	om waste materials. Li							
	ocesses or the optimum							
	11 be to characterize t							
pr	ocess, to establish the	e most cost-e	rrecti	ve and envi	trol technolog	eptable methods		
01	pollution control, and eds. The objectives of	this offert	new p	he met har a	wide range of	y development		
	ll include: technology							
de	velopment of environmen	tal assessme	ent cri	teria, the n	performance of	pollution control		
tr	ade-off studies, the id	lentification	of in	proved poll	ution control t	echniques, the		
de	evelopment of a general	test program	i for w	raste-to-ener	rgy processes,	the selection		
of	test sites, the develo	opment of exp	erimen	ital techniqu	ues, the develo	pment of test		
p1	ans for specific proces	sses, the per	forman	ice and analy	ysis of tests o	n waste-to-fuel		
pr	ocesses and the evaluat	cion and repo	rting	of the previ	ious activities	•		
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	IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) SIGNATURE OF PRINCIPAL INVESTIGATOR DATE							
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 	AGENCY STAFF (Intramural)	1		James D.				
×	NEGOTIATED CONTRACT	1.	. 3	RESPONSIBLE OF				
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\$400 K

RESEARCH GRANT

75

FUNDS OBLIGATED F.Y.

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

IERL-RTP/ EPA

STARTING DATE

April 76 (Est.)

ESTIMATED COMPLETION DATE

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MORICE OF RELEASED PROJECT		SSIE	
PRECARED FOR THE INITHSONIAN COLUME INFORMATI	ON EXCHANGE	772	ACM
nice of Markett Utilization And/Or Stabilization of Pyroly	tic Oil From Pyr	rolysis Of Agr	ric., Municipal &-
GIVE HAMES, DEMARTMENTS AND OFFICIAL TITLES OF PRINCIPROFESSIONAL PERSONNEL EMGAGED IN THE PROJECT.		•	
Dr. James A. Emight. Principal Posearch Scing Experiment Straigh	1	• -	•••
Mr. L. W. Elstor, Sector Research Scientis Esperiment Station	t, Waste Utiliza	tion Laborato	ory, Engineering
NAME AND ADDRESS OF ATTACHDANT INSTITUTION			
Georgia Institute of Technology	•		in ase him
225 North Avenua	·	****	
Atlanta, Georgia 30332	•	1	- 1
SUMMARY OF PROPOSED ANDK — (1) Objectives, (2) Approach, (3) In the Smithmonium Ser. ————————————————————————————————————	ork in progress are exchang	red with covernment a	nd private agencies sup-
The broad objective of this program is	to maximize the	value of pyr	olvtic oils obtai
ed by pyrolysis of agricultural, municipal,	forestry and ot	her wastes so	that maximum re-
source recovery and recommical utilization	can be realized	from these m	aterials. In ord
to accomplish this spiective, an extensive	research and de	velopment pro	gram is proposed
which will develop a data have for evaluat	ion of the oils.	for uses othe	r than as a fuel.
'yrolytic olds have potential as a source	of chemicals, as	a chemical f	eedstock, and for
specialty uses for elecific frections obta	ined from the oi	ls. The over	all investigative
program is divided this three phases which development but of the same time are inter	represent disti related.	nct areas for	research and
Phase I, during the first year, would oils and charact disation of products and Physical processing would involve various lation at atmospheric and reduced pressure lation, flash disattlation and molecular deprocessing will be investigated as a means	fractions obtain methods of disti , use of fractio istillation. Pr	ed by the pro llation, such mation column etreatment of	cessing methods. as simple distil- s, steam distil- the oil prior to
Phase II, during the second year, woul	d involve chemic	al processing	of the oil end/o
ractions from physical processing. Chemi	cal processing w	ould include.	but not he limit
o, hydrogenatica, alkylation and cracking echniques would be characterized as to th	. Products from	different ch	emical processing
	The second secon		* *
Phase III, during the third year, woul	d be determined	in large meas	ure by the result
of Phases I and II. An evaluation of the	results of Phase	s I and II wo	uld be made to
elect the most promising processing and t	reatment methods	ror upgradin	g pyrolytic oils.
hese processing rethods would then be inv	estigated at the	pilot plant	level.
dental enablaste Utilization Laboratory	TURE OF PRINCIPAL IN	VESTIGATOR	DATE
ngineering Experiment Station, Ca. Tech.		1.1.7 11.	77.24.77.7
SUPPORT METHOD (Charle and) TASK NO.	PROJECT OFFICER		
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X NEGOTIATED CONTINCT 2.1	RESPONSIBLE ORGA		
RESPANCE GHANT	SHWRL/Cinc		
TUNDS OGLIGATED IF.Y. NO. OF FUTURE YEARS TENTATI	VELY STARTI	NG DATE	ESTIMATED COMPLETION
ASSURED BLYOND CURRENT F.Y	•	e Jee	DATE

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U.S. ENVIRONMENTAL PROTECTION A	AGENCY		rm Approved No. 158-R0081			
NOTICE OF RESEARCH PROJ	ECT	PROJECT NO. (Do	not use this space)			
PREPARED FOR THE SMITHSONIAN SCIENCE INFOR	^{EPA} 77 AC	M				
Utilization of Wastes as Fossil Fue.						
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. E. Milton Wilson, Project Manager, Systems Division Roland P. Kelly, Vice President-Environmental Programs John M. Leavens, P. E. Robert E. Mitchell, P. E. William H. Parkhill, P. E. Nathan W. Snyder, Ph. D. NAME AND ADDRESS OF APPLICANT INSTITUTION The Ralph M. Parsons Company Systems Division 100 W. Walnut Street						
SUMMARY OF PROPOSED WORK — (1) Objectives, (2) Approac In the Smithsonian Science Information Exchange, summarie porting research and are forwarded to investigators who request	s of work in progress are exchange	ss (200 words or les d with government as	is. Omit confidential data). nd private agencies sup-			
Objectives: 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.						
Approach: Information will be revi investigators in the technologies of fuel generation, and bioconversion. operations will be made, mass and pollutant streams), and pollution co	combustion, pyrolys Estimates of the da energy balances esta	is, hydrolys te and costs blished (incl	is, synthetic of commercial luding			
Current Plans: Project initiated on Assessment phase.	June 25, 1975. Curr	ently in Tecl	nnology			
,						
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical,	SIGNATURE OF PRINCIPAL INV	ESTIGATOR	DATE			
dental, etc.) N.A.	E.M. Wilson		July 15, 1975			
FO	R OFFICE USE ONLY	?				
SUPPORT METHOD (Check one) TASK NO.	PROJECT OFFICER J. Kilgroe					
X NEGOTIATED CONTRACT 2.1 A	RESPONSIBLE ORGAN					
RESEARCH GRANT	IERL-RTP, E	ACD, FPB	,			
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TE		IG DATE	ESTIMATED COMPLETION			

\$95,600

F.Y. 75

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

June 25, 1975

Sept. 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081
	PROJECT NO. (Do not use this space)
NOTICE OF RESEARCH PROJECT	SSIE
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77 ACM
St. Louis - Union Electric Emission Testing Support	
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	OR PROJECT DIRECTORS AND ALL OTHER
L.J. Shannon, Project Director	
NAME AND ADDRESS OF APPLICANT INSTITUTION	
Midwest Research Institute	·
425 Volker Blvd.	
Kansas City, Missouri 64110	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or P In the Smithsonian Science Information Exchange, summaries of work in progress are exch porting research and are forwarded to investigators who request such information. Your summ	nanged with government and private agencies sup-
A refuse processing plant and RDF firing equipmen	nt was designed, constructed

A refuse processing plant and RDF firing equipment was designed, constructed and operated under a demonstration grant to the city of St. Louis.

Testing and evaluation on the demo has been performed under a contract to the Midwest Research Institute. Activities under the contract include

- planning, performance and evaluation of multi-media pollution tests
- 2. performance and cost studies of the equipment and facilities
- performance of trade-off studies to evaluate alternative equipment operating conditions need to minimize costs and pollution
- 4. preparation of special technology transfer report.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) $N_{\bullet}A_{\bullet}$					SIGNATURE OF PRINCIPAL INVESTIGATOR DATE Sept. 17			17, 1975	
				F(OR OFFIC	E USE ONLY			
	SUPPORT METHOD (Check one) TASK		TASK NO.		PROJECT O				
	AGENCY STAFF	(Intramu	ral)			J. Kilgroe			
X	NEGOTIATED C	ONTRAC	т	7 2.1 A		IERL-RTP, EACD, FPB			
	RESEARCH GRA	NT							
FUN	\$498, 800	75		FUTURE YEARS TO BEYOND CURRE		ELY ,	April 9, 1975	April 1	976

	J.S. ENVIRONM	ENTAL PROTECTION A	GENCY		rm Approved
					No. 158-R0081
	NOTICE OF	RESEARCH PROJ	ECT	ISSIE	not use this space)
PREPARED EO	D THE CHITHS	ONIAN SCIENCE INFOR	AATION EVENANCE	EPA	
TITLE OF PROJECT	K I TE SMII TS	UNIAN SCIENCE INFURI	MATION EXCHANGE	77 ACM	Geron Francisco (Al Successión III de la Companya (Al III de la Comp
	ing Study	for Waste Proce	essing		
GIVE NAMES, DEPART	MENTS, AND C	FFICIAL TITLES OF PI	RINCIPAL INVESTIGA	TORS OR PROJECT DIRECTO	RS AND ALL OTHER
		ED IN THE PROJECT.			
L.J. Shanno					
K. P. Ananth	, Principa	ıl Investigator			
NAME AND ADDRESS Midwest Re					
425 Volker B		errare			
Kansas City		ri 64110			
SUMMARY OF PROPOS	SED WORK - (1) Objectives, (2) Approac	h, (3) Current Plans and	d/or Progress (200 words or le	ss. Omit confidential data).
				e exchanged with government a summary is to be used for the	
	_	-		ts and benefits of	
				results of this stu	dy will be used
to fund tech	mology de	velopment work	by IERL-CINN	I & IERL-RTP.	
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	y	T		CIDAL INVESTIGATOR	DATE
IDENTIFY PROFESSION dental, etc.)	ONAL SCHOOL	INVOLVED (Medical,	SIGNATURE OF PRING	CIPAL INVESTIGATOR	1
N.	.A.				Sept. 17, 1975
		FOR	OFFICE USE ONLY		
SUPPORT METHO	DD (Check one)	TASK NO.	J. Kilg		
AGENCY STAFF		•		E ORGANIZATION	
NEGOTIATED		2.1B		TP, EACD, FPB	
RESEARCH GRA	EV NO	OF FUTURE YEARS TE	NTATIVELY	STARTING DATE	ESTIMATED COMPLETION
25 K	75 ASSI	JRED BEYOND CURREN	I F.Y.	July 15, 1975	Dec. 1975

NOTICE OF RESEARCH PROJECT PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE TYPE OF PROJECT Materials and Fuel Recovery Processing Research at Pilot Plant Scale GIVE NAMES, DEPARTMENTS, AND OFFICIAL WILLS OF PRINCIPAL INVESTIGATORS ON PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL EMBORAGE OF THE PROJECT. Dr. Harvey Alter, Director of Research Programs, NCRR Wr. Stu Natof, Staff Engineer, NCRR NAME AND ADDRESS OF APPLICANT INSTITUTION National Center for Resource Recovery, Inc. 1211 Connecticut Avenue, N.M. Washington, I.O. 20036 Washington, I.O. 20036 Washington, I.O. 20036 Washington, I.O. 20036 Washington of PROPOSED WORK - 0.019 Objectives: 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. Approach: NCRR's own facility (EIEF) includes the necessary grinders, air classifiers, blowers, screens, troomels 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. Progress: Currently the facility is essentially ready for operation, and research tests can begin almost immediately: Support METHOD/Crocks ones. **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Character** **Accept Staff Charact						
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Dr. Harvey Alter, Director of Research Program Mr. Stu Natof, Staff Engineer	es Mr. William Schlag, Super of Oper.
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	
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Edward Harada, Chief	Engineer, County o	f Hawaii	,	
.25 Aupuni Street	•		:	
Hilo, Hawaii 96720			•	
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25 Aupuni Street Hilo Hawaii 96720		•		
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addition, t	echnic	al and	economic te	sts and eval	uations v	vill be cond	icted on the
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U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-RGOS1
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do not use this space)
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TITLE OF PROJECT	County Power Plant Fuel
Environmental Effect of Utilizing Solid Waste as a GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATE PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	or project directors and all other
Dale A. Vaughan Senior Research Scientist Mate	erials Science Dept., Corrosion Re-
	H H H H
	ospheric Sciences Section
	ls and Combustion Systems Section
Battelle Columbus Laboratories	
•	_
505 King Avenue, Columbus, Ohio 43201	NF
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/ In the Smithsonian Science Information Exchange, summaries of work in progress are a porting research and are forwarded to inventigators who request such information. Your s	exchanged with government and private agencies sup-
The objective of this project is to inves	ticate the benefits to the environ-
ment resulting from the utilization of solid waste coal-fired power plants.	
•	
The approach is to evaluate the gaseous a	nd particulate emission plus the
corrosiveness of combustion products as a function	of refuse-coal ratio and as a
function of sulfur content of the coal. Experiment	s will be conducted in an operating
power station through cooperation of the City of Co	
Furnace and stack gas and particulate sam	ples will be collected throughout
the periods that corrosion probes are inserted at s	-
recovery passes. These probes will be examined for	
composition for various gas and metal temperatures	
utilization of solid waste as a supplementary fuel.	os provido Saramos in recerc
delizione di delia madeo de a dappionimant i adeix	
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X PLM ARCH GRANT SHWRL	Cincinnati/ EPA
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6/74

ESTIMATED COMPLETION 5/76

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		U.S. ENVI	RONMEN	TAL PROTECTION	AGENCY			E .	No. 158-Ri		
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1/	M. P. Schrag	g, Prin	ıcıpaı	Investigator							
•	e and address (Midwest Re										
	125 Volker F		111041								
	Kansas City		souri	64110							
I1	n the Smithsonian	Science In	formation	Exchange, summarie	s of work:	in progress are	exchan _i	ress (200 words or leged with government a	nd private ag	gencie:	íal data). s sup-
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	TIFY PROFESSIONAL, etc.)	ONAL SCH	IOOL INV	OLVED (Medical,	SIGNATU	RE OF PRINC	JPAL IN	IVESTIGATOR		1 -7	1075
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7.	AGENCY STAFF			2.6		RESPONSIBL		NIZATION			
X NEGOTIATED CONTRACT				IERL-RTP, EACD, FPB							
FLIN	RESEARCH GRA	F.Y.	NO. OF	FUTURE YEARS TE	NTATIVE	LY	START	ING DATE	ESTIMATE	D CON	MPLETION
, 514	\$25,000	75	ASSURE	D BEYOND CURREN	T F.Y.		July	8, 1975	Jan.	1976	;

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT FPA PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE **77 ACM** TITLE OF PROJECT Rotary Kiln Gasification of Solid Wastes and Sewage Sludge GIVE NAVES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. John A. Coffman, Project Director Roger H. Hooverman, Research Engineer NAME AND ADDRESS OF APPLICANT INSTITUTION Wright-Malta Corporation Plains Road Ballston Spa. New York 12020 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 will test the thesis that a mixture of raw solid waste and liquid sewage sludge can be converted clearly into fuel gas, primarily by steam, at temperatures below 1000°F, in a pressurized, externally heated rotary kiln. 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. 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. IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical. SIGNATURE OF PRINCIPAL INVESTIGATOR DATE dental, etc.) Oct 30,1915 FOR OFFICE USE ONLY PROJECT OFFICER SUPPORT METHOD (Check one) TASK NO.

AGENCY STAFF (Intramural)

75

NEGOTIATED CONTRACT

RESEARCH GRANT

\$250 K

2.7

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

R.L. Sternberg

RESPONSIBLE ORGANIZATION

.SHWRL:/Cincinnati

STARTING DATE

/ EPA

ESTIMATED COMPLETION

6/77

U.S. ENVIRONMENTAL FROTECTION	AGENCY		orm Approved No. 158-R0081				
		PROJECT NO. (De	not use this space)				
NOTICE OF RESEARCH PROJ	ECT	SSIE	'				
PREPARED FOR THE SMITHSONIAN SCIENCE INFOR	MATION EXCHANGE	EPA 77 ACM					
TITLE OF PROJECT	· · · · · · · · · · · · · · · · · · ·						
Co-incineration of Sewage Sludge wi	th Refuse and/or	Coal					
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF F PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.		RS OR PROJECT DIRECTO	ORS AND ALL OTHER				
Dale C. Bergstedt, Deputy Director of Operations 612/222-8423 Wilber A. Blain, Chief Process Engineer							
Gary J. Swanson, Staff Engineer							
Robert L. Hughes, Superintendent, S	eneca Wastewater	Treatment Plant					
NAME AND ADDRESS OF APPLICANT INSTITUTION							
Metropolitan Waste Control Commissi	on .						
350 Metro Square Building							
St. Paul, Minnesota 55101							
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approa In the Smithsonian Science Information Exchange, summarie porting research and are forwarded to investigators who request	s of work in progress are e	xchanged with government a	ind private agencies sup-				
Purpose of the project is to e	waluate the oner	estional worth an	d environmental				
aspects, if any, of adding combusti							
filter cakes, as offsets to part or							
incineration practice. Impending s	hortages of natu	ral gas and fuel	oil create the				
sense of urgency in this work. Low							
be utilized as admix materials in v							
shredded combustibles from refuse,	in pelletized an	d loose form, wo	od chips from				
urban tree-trimming, shredded tires							
multiple hearth furnace in a modern	wastewater trea	tment plant will	States! communi-				
Applicability to other incinerators ties will be assessed. Assay of st	of the 200-plus	comphine will	include relevant				
chemical properties of public healt	ack gases, alter h significance.	Scrubber draina	ge and ash will				
also be assayed.	. Significance.	00140001 414114	60 4114 4111				
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IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical,	SIGNATURE OF PRINCIP	AL INVESTIGATOR	DATE				
dental, etc.)	Dale C. Be	uses for					
N/A	Dale C. Bé	rgstédt ^V	August 11, 1975				
FO	R OFFICE USE ONLY						
SUPPORT METHOD (Check one) TASK NO.	PROJECT OFF						
AGENCY STAFF (Intramutal)	2.7 RESPONSIBLE	Olexsey 513/6	84-8271				
NEGOTIATED CONTRACT	•						
X RESEARCH GRANT	i EPA	WRD, MERL, Cinci	nnati, Ohio				
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TE ASSURED BEYOND CURRE		TARTING DATE	DATE				

\$250 K

1975

N/A

8/01/75

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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	77ACM
Pilot Scale Pyrolytic Conversion of Mixed	Waste to Fuel
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	PROJECT DIRECTORS AND ALL OTHER
Project Director: Dr. John Howard Project Manager: Mr. James Norton	
NAME AND ADDRESS OF APPLICANT INSTITUTION Energy Resources Co. Inc. 185 Alewife Brook Parkway Cambridge, MA 02138	
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and/or Prog In the Smithsonian Science Information Exchange, summaries of work in progress are exchange porting research and are forwarded to investigators who request such information. Your summary	ged with government and private agencies sup-
Objectives: To develop models relating to products (gas, liquid, solid) produced in various types of solid wastes as function conditions. Solid wastes include mixed muagricultural, industrial, etc.	of pyrolyzed
Approach: Experimental study using small and pilot size (200 kg/hr) fluidized bed plata for model development and verification and semi-empirical models will be examined Project started 1 July 1975.	pyrolyzer to produce
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•	
	*
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, SIGNATURE OF PRINCIPAL IN dental, etc.)	
FOR OFFICE USE ONLY	
SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICER R.L. Sternb	erg
X NECOTIATED CONTRACT 2.8 RESPONSIBLE ORGAN	

\$300 K

RESEARCH GRANT

75

FUNDS ABLIGATED F.Y.

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

SHWRL/Cincinnati/ EPA

STARTING DATE

6/75

ESTIMATED COMPLETION

6/77

U.S. ENVIRONMENTAL PROTECTION AGENCY	Form Approved OMB No. 158-R0081						
AND AND AND AND AND AND AND AND AND AND	PROJECT NO. (Do not use this space)						
NOTICE OF RESEARCH PROJECT	SSIE EPA						
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXC							
TITLE OF PROJECT							
Conversion of Solid Waste to Polymer Gasoline give names, departments, and official titles of principal in professional personnel engaged in the project.	VESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER						
Charles B. Benhem, Research Aerospace Enginee	er						
James P. Biebold, Chemical Engineer							
NAME AND ADDRESS OF APPLICANT INSTITUTION							
Naval Weapon Center China Lake, California 93555							
pyrolysis unit.	to sufficient quantity of hydrocarbon ical intermediates. Phase I of subsercization of hydrocarbon fraction to nternal combustion engine operation. I be operated under various conditions designed, fabricated and added to the compositional analysis on pyrolysis and each test condition.						
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)							
FOR OFFICE USE ONLY							
Ch	ouect officer narles J. Rogers, Senior Research Chemist						
X NEGOTIATED CONTRACT 2.8	sponsible organization Did & Hazardous Waste Research Division						
	RL-Cincinnati FPA ESTIMATED COMPLETION						
100K 75	June 11, 1975 June 1976						
EPA Form 5760-1 (7-72) REPLACES PHS FORM 166 AND SI-S 229	H MAY NOT BE USED.						

U.S. ENVIRONMENTAL PROTECTION AGENCY	E	m Approved			
U.S. ENVIRONMENTAL PROTECTION AGENCY		m Approved No. 158-R0081			
NOTICE OF RESEARCH PROJECT	PROJECT NO. (Do I	not use this space)			
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	77	ACM			
TITLE OF PROJECT Development of a Prototype Portable System	for Pyrolysis	OŤ			
ACTICULTURAL Wastes into Fuels and Other Products GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.	PROJECT DIRECTOR	RS AND ALL OTHER			
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 S 305 Administration Building Atlanta, Georgia 30332	Station				
SUMMARY OF PROPOSED WORK - (!) Objectives, (2) Approach, (3) Current Plans and/or Prog In the Smithsonian Science Information Exchange, summaries of work in progress are exchange porting research and are forwarded to investigators who request such information. Your summary	ged with government an	d private agencies sup-			
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 ulfur free fuel and other chemical products. However, the great distances that these wastes must be nauled, 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. 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 bar self sufficient, energy-wise.	rns, thus maki	ng them almost			
IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.)	IVESTIGATOR	DATE			
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SUPPORT METHOD (Check one) TASK NO. PROJECT OFFICER	/O.W				
RECOTIATED CONTRACT ACCINCY STREE (Internmental) 2.9 D. A. Oberack Proposition Contract Proposition Contract SOLID & Hazar		search Division			
X RESEARCH GRANT MERL-Cincinna	ITI	ESTIMATED COMPLETION DATE 11-30-77			

U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT SSLE 77 ACM PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE TITLE OF PROJECT An Anaerobic Digester Heated by Solar Energy GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Mr. David Cassel, Project Director 301/268-0717 Mr. Jess W. Malcolm, Project Coordinator Dr. Claude Crawford, Assistant Project Director NAME AND ADDRESS OF APPLICANT INSTITUTION Environmental Systems, Inc. 150 South Street Annapolis, Maryland 21401

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 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 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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) N/A			1	David Cassel David Cassel David Cassel				
	N/A					David Cas	5561	August 11, 1973
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	\$30,000	1975		None			September 1975	Feb. 1976

EPA Form 5760-1 (7-72)

REPLACES PHS FORM 166 AND SI-SIE 76A WHICH MAY NOT BE USED.

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	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 Emsiness 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.

	NTIFY PROFESSI	ONAL SC	HOOL INVO	LVED (Medical,	SIGNAT	JRE OF PRINC	IPAL INVESTIGATOR	DATE
dental, etc.) N/A				Prepared by Abu Bakar Jaafar			September 11,1975	
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X	NEGOTIATED C		г	2.10-A			e organization Cincinnati, Onic	4526 8
	TOS OBLIGATED	F.Y. 75	NO. OF F	UTURE YEARS TO BEYOND CURRE O	ENTATIVE NT F.Y.	ELY	5/30/75	ESTIMATED COMPLETION

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NOTICE OF RESEARCH PROJECT	SSIE .	,
PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE	EPA	
TITLE OF PROJECT	77ACM	
Enzymatic Hydrolysis of Waste Cellulose		
GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATO	ORS OR PROJECT DIRECTO	RS AND ALL OTHER
PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT.		
Leo Spano, Chief Pollution Abatement Division		
John M. Nystrom, Acting Head Engineering Technology G	roup	
	radiat feralesia control falta y magazini, agging agging ferale y generalizat da destrutada da Malanda,	
name and address of applicant institution Department of the Army		1
U. S. Natick Laboratories		
Natick, Mass. 01760		
SUMMARY OF PROPOSED WORK - (1) Objectives, (2) Approach, (3) Current Plans and	or Progress (200 words or les	s. Omit confidential data).
In the Smithsonian Science Information Exchange, summaries of work in progress are oporting research and are forwarded to investigators who request such information. Your s	exchanged with government ar	nd private agencies sup-
OBJECTIVE: The research project will generate techni	cal data needed to	facilitate
the production of glucose from waste cellulose.		
APPROACH: Natick will specifically conduct studies o	n:	
1. Enzyme production.		
Substrate conditioning.		
3. Saccharification.		
4. Fermentation process development.		
5. Saccharification reactions.	_	
Process control system and economic analysi	S.	
PROGRESS: Results from ongoing work conducted by Nat	ick indicated that	t milled news-
paper digested in the presence of Trichoderma cellula	se vield alucose	concentrations
of 2-10%. Work to upgrade glucose yields is ongoing.	J	
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FOR OFFICE USE ONLY		
TASK NO. FROJECT OF		
AGENCY STAFF (Introductal) Charles J.	. Rogers, Senior R	esearch Chemist
	- proablization Bizardous Waste Res	earch Division
X 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	izardous Naste Res Innati EPA	
FUNDS OBLIGATED F.Y. NO. OF FUTURE YEARS TENTATIVELY	STARTING DATE	DATE 1076
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	PREPARED FOR THE SMITHSONI	AN SCIENCE INFO	RMATION	EXCHANGE	FPA 77ADG	·
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Me GIV PRO	lein: Furnaces e names, departments, and off defessional personnel engaged	ICIAL TITLES OF F				
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NAN	ME AND ADDRESS OF APPLICANT IN	STITUTION				
ox: atriput man the work of tee	IMARY OF PROPOSED WORK - (1) OF In the Smithsonian Science Information ing research and are forwarded to invest ass melting furnaces are ides, nitrogen oxides, a mospheric emissions. In rchased by manufacturing ass industry was consume terials are converted in the thermal efficiency is rk will be the development of the epurpose of this effort issions from glass meltiermal efficiency of the this program is to demochnology on a commercial chnology on a commercial state of the epurpose of the series are converted in the program is to democh th	Exchange, summariestigators who requests and other gas in 1971, the gaindustries and by the high to molten glow, usually ent of technologiass melting furnaces furnaces and furnaces and glass melting furnaces and glass melting furnaces and glass melting furnaces and furnaces and glass melting furnaces and glass meltin	a potes which a potes who glass to be the miles of the mi	in progress are excharmation. Your summate that source ich are gener industry rank—thirds of the perature melt with most hit than 35 percentace. Introl technol econdary benee to conserve ical and econ race within	anged with government ary is to be used for the of fine part; ally considered ninth in to e energy util; ing furnaces gh temperature ent. The propair emissions ogy for the alfit will be to energy. The omic benefits the industry.	and private agencies sup- ese purposes. iculate, sulfur ed undesirable otal fuels ized by the in which raw e operations, duct of this s and improve the otatement of air o improve the ultimate goal
		T	R OFFICE	E USE ONLY		
	SUPPORT METHOD (Check one)	TASK NO.		PROJECT OFFICE		
v	AGENCY STAFF (Intramural) NEGOTIATED CONTRACT	1		E. J. Wool	GILIGE GANIZATION	
X	RESEARCH GRANT	_		IERL-RTP/	EPA	

FUNDS OBLIGATED F.Y. \$235 K

75

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

STARTING DATE

Feb. 76(Est.)

ESTIMATED COMPLETION DATE 5/76

U.S. ENVIRONMENTAL PROTECTION AGLINCY Form Approved O.MB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE FORM Approved O.MB No. 158-R0081 PROJECT NO. (Do not use this space) SSIE EPA 77-ADG,

Pollution Control & Heat Recovery from Primary & Secondary Nonferrous Smelters

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

William Coltharp, Senior Engineer

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.

Objective: Investigate energy recovery applied to nonferrous smelters while simultaneously easing the control of air pollutants.

Approach: 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.

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U.S. ENVIRONMENTAL PROTECTION AGENCY Form Approved OMB No. 158-R0081 PROJECT NO. (Do not use this space) NOTICE OF RESEARCH PROJECT SSIE EPA PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE 77 BEW Fuel Cell Studies and Development (ERDA) GIVE NAMES, DEPARTMENTS, AND OFFICIAL TITLES OF PRINCIPAL INVESTIGATORS OR PROJECT DIRECTORS AND ALL OTHER PROFESSIONAL PERSONNEL ENGAGED IN THE PROJECT. Dr. L. R. Lawrence, Jr. ERDA/CONRT Washington, D.C. 20545 202/376-4739 NAME AND ADDRESS OF APPLICANT INSTITUTION Energy Research and Development Administration 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: 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. Approach: 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. Current Plans and/or Program: The referenced contracts are presently in the process of being let. IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, FOR OFFICE USE ONLY TASK NO. PROJECT OFFICER SUPPORT METHOD (Check one) Dr. L. R. Lawrence, Jr. 202/376-4739 AGENCY STAFF (Intramutal) 1 & 2 RESPONSIBLE ORGANIZATION NEGOTIATED CONTRACT Energy Research & Development Administration RESEARCH GRANT NO. OF FUTURE YEARS TENTATIVELY ASSURED BEYOND CURRENT F.Y. STARTING DATE ESTIMATED COMPLETION FUNDS OBLIGATED F.Y.

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PREPARED FOR THE SMITHSONIAN SCIENCE INFORMATION EXCHANGE

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TITLE OF PROJECT Geothermal Systems/Environmental Assessment of Extraction, Conversion, and Waste Disposal

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

Donald B. Gilmore - Principal investigator, Monitoring Systems Design and Analysis Staff

(702) 736-2969

NAME AND ADDRESS OF APPLICANT INSTITUTION

U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring & Support Laboratory, P.O.Box 15027, Las Vegas, Nevada, 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.

Objective: A guideline document for the multi-media monitoring strategy around any

geothermal resource development.

Approach: Development and validation of a monitoring strategy for monitoring the

effects of geothermal effluents on plants, animals and groundwater.

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.

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.

There will be developed a set of referenced sampling methods.

Current Plans:

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.

IDENTIFY PROFESSIONAL SCHOOL INVOLVED (Medical, dental, etc.) NA					SIGNATURE OF PRINCIPAL/INVESTIGATOR DATE Donald B. Delmand 8/15/75			8/15/75	
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TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)					
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4. TITLE AND SUBTITLE		5. REPORT DATE October 1976			
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16. ABSTRACT

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.

IT. KEY WO	KEY WORDS AND DOCUMENT ANALYSIS						
a. DESCRIPTORS	b.IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group					
ABSTRACTS	ENERGY/ENVIRONMENT	06F					
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8. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES					
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