



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

(NR)  
Sandi T. LF  
ID: 13  
Garry R. L  
TR BFC 1.7.10.  
Jerome  
J.L

**URGENT!!!**  
**ROUTING AND CONCURRENCE SHEET**

DATE: 6/4/2002

INITIALS

1. MAITCHESON - CONCUR

Ma DATE: 6/4/2002

2. JDORFMAN - CONCUR

Jd DATE: 6/10/2002

3. RROUGH - CONCUR

R DATE: 6/4/2002

PLEASE RETURN TO M. AITCHESON, T-10 D11

4. SRUBIN - CONCUR

Sr DATE: 6/11/2002

5. CADER - CONCUR

C DATE: 6/11/2002

6. FELTAWILA - CONCUR, SIGN

FE DATE: 6/11/2002

RETURN TO M. AITCHESON

SUBJECT: DOE/NRC REIMBURSABLE AGREEMENT RE: ADVANCED GAS REACTOR  
TECHNOLOGY, REGULATION AND FUEL EVALUATION (FORMERLY KNOWN AS  
PEBBLE BED MODULAR REACTOR (PBMR) TECHNOLOGY AND FUEL EVALUATION  
(MOD. 2 - ADD'L FUNDS)

THE \$500K OF FUNDS PROVIDED UNDER THIS MODIFICATION NO. 2 WILL PAY  
FOR: \$0K TRAVEL, \$ 223K FTE, \$277K CONTRACT ASSISTANCE

ANY QUESTIONS, PLEASE CONTACT MARIANNE AITCHESON

FROM: M. AITCHESON 415-5822 EMAIL MMR

DISTR

Subj: DOE AGRT PROJECT

J. Dorfman, OCFO/DPBA

F. Eltawila, DSARE

B. Stehlin, DSARE

M. Aitcheson, PMG/PMPDAS

T. Stevenson, OCFO/DAF

S. Rubin, DSARE/RES

J. Murphy, OCFO/DPBA

N. Price, FMG/PMPDAS

HH/3



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 14, 2002

U.S. Department of Energy  
Program Services Division, Code ME-643.1  
1000 Independence Avenue, SW  
Washington, DC 20585  
ATTN: Shawn Duncan, Contract Specialist

Dear Ms. Duncan:

Enclosed is one fully executed copy of Interagency Agreement Number DE-AI01-01NE-23069, Modification A002. Please note that the Program Manager has changed to Farouk Eltawila. If you have any questions or comments, please contact me on 301-415-5822, via email [mma1@nrc.gov](mailto:mma1@nrc.gov) or by facsimile at 301-415-5151. I look forward to our continued association.

Sincerely,

A handwritten signature in cursive script, reading "Marianne M. Aitcheson", is positioned above the typed name.

Marianne M. Aitcheson, Leader  
Procurement Management Group  
Program Management, Policy  
Development and Analysis Staff  
Office of Nuclear Regulatory Research

Enclosure:  
As stated

cc: T. Miller, DOE

DOE F 1270 1  
(08-92)U.S. DEPARTMENT OF ENERGY  
INTERAGENCY AGREEMENT FACE PAGE

## FUNDS-OUT INTERAGENCY AGREEMENT (IA)

Pursuant to: Authority of the Economy Act of 1932 as amended by  
P.L. 95-91

## 2. TYPE OF ACTION.

☐ New Award    ☒ Modification    ☐ Extension    ☐ Other

## 1. IDENTIFICATION.

a. DOE IA No.: DE-AI01-01NE23069  
 b. Other Agency IA No.: \_\_\_\_\_  
 c. Modification No.: A002  
 d. Task Order No.: \_\_\_\_\_  
 e. Agency Location Code (ALC): \_\_\_\_\_  
 Procurement Request Authorization No. 01-02NE23069.001

## 3 PROJECT TITLE/DESCRIPTION: Advanced Gas Reactor Framework, Technology and Fuel Evaluation

## 4. AGREEMENT PERIOD (month, day, year)

From: 2/23/01                      To: 9/30/03

## 5. FINANCIAL

a Accounting and Appropriation Data:  
 89X0224 AF-37-50 \$250,000 CR2491 253 NE/YA 12428339  
 89X0224 AF-37-70 \$250,000 CR2491 253 NE/YA 12428717

b	Funding Sources	\$	
	Previous Funding	\$	500,000
		\$	
		\$	
	DOE (this action)	\$	500,000
	Agency		
	Total	\$	<u>1,000,000</u>

## c. Method of Payment

☐ Advance    ☒ Reimbursement    ☐ Progress

d. Amount obligated to this action      \$500,000

e. Invoices, if any, submit to:  
 Department of Energy  
 Office of Headquarters Accounting Division  
 Accounts Payable Division, P.O. Box 500  
 Germantown, MD 20875-0500

f. Voucher Form to be used:  
 SF-1080

## 6. DOE PROGRAM OFFICER

Name: Tom Miller

Address: U.S. Department of Energy  
 Office of Nuclear Energy, Science Technology, NE 20  
 19901 Germantown Road  
 Germantown, MD 20874  
 Telephone Number: (301) 903-7731

## 7. PERFORMING AGENCY

a. Name: Office of Nuclear Regulatory Research

b. Address: One White Flint North  
 11555 Rockville Pike  
 Rockville, Maryland 20852-2738

Attention: Marianne M. Aitcheson

## c. Program Director

Name: ~~Thomas L. King~~ Farouk Eltawila

Address: Office of Nuclear Regulatory Research  
 One White Flint North  
 11555 Rockville Pike  
 Rockville, Maryland 20852-2738  
 Mail Stop: T-10 E32

Telephone Number: 7499  
 (301) 415-XXXX

## 8. ISSUING OFFICE

Department of Energy (DOE)  
 Headquarters Procurement Services  
 1000 Independence Avenue, SW  
 Washington, DC 20585

## 9. PERFORMING AGENCY ACCEPTANCE

*F. Eltawila*  
 (signature)

6/14/02  
 (date)

Name (typewritten): Farouk Eltawila, Director

Title (typewritten): Division of Systems Analysis and  
Regulatory Effectiveness

Telephone: Office of Nuclear Regulatory Research  
 U.S. Nuclear Regulatory Commission  
 Washington, DC 20555  
 301-415-7499

## 10. DOE CONTRACTING OFFICER

*Lynnette A. Desorcie*  
 (signature)

5/23/02  
 (date)

Name (typewritten): Lynnette A. Desorcie

Title (typewritten): Contracting Officer

Reverse of DOE F 1270 1  
INTERAGENCY AGREEMENT GENERAL PROVISIONS

- |     |  |      |  |
|-----|--|------|--|
| I   | <p><b>Definitions</b> For purposes of this agreement, "DOE" means the United States Department of Energy or any duly authorized representative thereof, and "Agency" means the performing agency stated in the interagency Agreement (IA) or any duly authorized representative thereof</p>  | V    | <p><b>Excess Funds</b> The Agency shall take prompt action to return to the DOE any funds determined to be excess to the work during the performance of the work and any unobligated funds after the completion of the agreement or as of September 30 each year unless the agreement has been extended and any unused balance have been carried forward in the extension</p>  |
| II  | <p><b>Costs Chargeable to DOE Funds</b> Agency costs actually incurred which are necessary or incident to the performance of the work are to be considered allowable for cost-reimbursement purposes. Such costs include direct and where applicable, a properly allocable portion of indirect costs, as follows</p>   | VI   | <p><b>Financial Reports</b> The Agency shall furnish the DOE timely monthly or other periodic cost or financial reports in such form and detail as may be required by the DOE. Any costs incurred for capital equipment or other assets shall be supported by a list showing the description, make, any serial number, and the cost of each item acquired</p>  |
| A   | <p>Direct costs are the costs that can be directly identified with and charged to the work under the IA. Examples of such costs are salaries and wages, technical services, materials, travel and transportation, communications, and any facilities and equipment expressly approved for purchase under the IA</p>  | VII  | <p><b>Accounting Records</b> The Agency shall accumulate and account for obligations and cost incurred in connection with the work being performed under this IA in such form and detail as may be required by the DOE</p>   |
| 1   | <p>Foreign travel costs are allowable only when the trip has received the advance approval of DOE</p>  | VIII | <p><b>Termination</b> The DOE may terminate this IA upon 30 days written notice of such termination addressed to the Agency. In the event of such termination the Agency shall be reimbursed, to the extent permitted for obligations actually incurred to the effective date of termination and not later than the date upon which the IA would have expired if not terminated under this paragraph, which the Agency, in the exercise of due diligence is unable to cancel. Payments under this IA, including payments under this article shall not exceed the amount(s) committed under this IA</p> |
| 2   | <p>Reimbursement for expenditures at technical meetings and seminars at which attendance is not required in the performance of this IA shall not be allowable without prior written approval of DOE</p>  | XI   | <p><b>Capital Equipment</b></p>  |
| B   | <p>Indirect costs shall be limited to the properly allocable portion of costs that cannot be charged directly to the work but that can be shown as mutually benefiting the work covered by the IA as well as other work of the servicing agency. Justification for any such charges shall be required, and the basis of allocation must be reasonable. However, general administrative or central agency overhead is chargeable only to the extent that it may be specified in the IA</p>  | A    | <p>"Capital Equipment" means each item of equipment which is expected to have an extended period of service, generally a year or more, and has sufficient monetary value, generally of \$500 or more, to justify continuing accounting records for the item</p>  |
| III | <p><b>Financing</b> DOE will finance programs on a reimbursable basis when acceptable to the other agency. If the reimbursable basis is not acceptable, however, then DOE will finance the work by a Consolidated Working Fund Advance, preferably on a quarterly basis, or by an appropriation transfer or transfer appropriation. DOE will reimburse or will make available, in advance, the amount specified in the IA incorporating these general provisions. Requests for funds shall show separately the amount required for (a) operating costs, (b) capital equipment, and (c) acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion</p>  | B    | <p>Unless expressly authorized by the Contracting Officer in advance, the Agency shall not be reimbursed or use funds made available under this IA for the procurement or fabrication of capital equipment</p>   |
| a   | <p>Vouchers for payment will be submitted on the agreed upon form</p>  | X    | <p><b>Real Property and Facilities</b> Unless expressly authorized by the DOE in advance, the Agency shall not be reimbursed or use funds made available under this IA for the acquisition or condemnation of any real property or any facility or for plant or facility acquisition, construction or expansion</p>  |
| b   | <p>Any funds advanced which are expected to remain beyond the original period of performance of a project which is incomplete or for which there is an increased scope of work, will remain available to the Agency if the IA is amended by the DOE to extend the period of performance for the work beyond the original completion date. Request for such time extensions should be made to the DOE by the Agency at least 30 days prior to the end of the performance period</p>   | XI   | <p><b>Patents and Technical Data</b> The Agency shall coordinate all patent and technical data aspects with the DOE/AL Patent Counsel as they arise during the administration of this IA</p>   |
| c   | <p>Any advanced funds remaining for a continuing project remain available for the entire performance period of the project, unless there is a date specified as a required completion date after which no further funds shall be expended</p>  | XII  | <p><b>Environmental Safety and Health Requirements</b> DOE will not assume responsibility for prescribing and/or enforcing environmental safety and health requirements for other Agencies engaged in the performance of work for the DOE</p>  |
| IV  | <p><b>Notice of Costs Approaching Total Estimated Costs</b> Whenever the Agency has reason to believe that the total cost of the work under this IA will be greater or substantially less than the presently estimated cost of the work, the Agency shall promptly notify the DOE in writing. The Agency shall also notify the DOE, in writing, when the aggregate of costs incurred and outstanding commitments allowable under this IA are equal to 90 percent of the presently estimated total costs under this IA. When the costs incurred and outstanding commitments equal 100 percent at such estimated total costs, the Agency shall make no further commitments or expenditures (except to meet existing commitments) and shall be excused from further performance of the work unless and until the DOE shall increase the total estimate costs to be incurred with respect to this IA</p> |      |  |

1. The Government Estimate under block 52. paragraph D to Interagency Number DE-AI01-01NE23069 is corrected from \$20,000 to \$1,400,000.
2. The Government Estimate under block 52. paragraph D to Modification Number A001 under Interagency Number DE-AI01-01NE23069 is corrected from \$500,000 to \$1,400,000.
3. The Statement of Work is revised to refine the scope of effort and to extend the key deliverables due date. The revised Statement of work is attached.

**Except as provided herein, all other terms and conditions of Interagency Agreement DE-AI01-01NE23069 remains unchanged and in full force and effect**

**End of Modification**

## Statement of Work

Exhibit 1A

Advanced Gas Reactor Technology and Fuel Evaluations

As the U.S. Government agency responsible for the development and execution of civilian nuclear energy research and development programs, the Department of Energy (DOE) seeks the assistance of the U.S. Nuclear Regulatory Commission (NRC) to help assess advanced gas reactor technology and fuels.

Phase II Activities:

1. Gas Reactor Technical and Safety Assessment - Conduct work, in coordination with the Department of Energy (DOE) and industry to assess the generic technical and data research issues associated with the design and technology of advanced high temperature gas reactors (HTGR). New advanced gas reactor concepts such as the Pebble Bed Modular Reactor (PBMR), and the Gas Turbine Modular Helium Reactor (GT-MHR) have been identified by DOE as reactor technologies for possible near-term deployment in the United States. An assessment that addresses gas reactors for the key generic technical and data research issues affecting HTGRs.

## Key Deliverables:

- Identification of research needs to address the key generic technical and data research issues - June 2002
- Identification of resolution paths or methods for key generic technical issues - May 2003

2. Gas Reactor Analysis Codes V&V - identify and assess generic modeling and validation issues for safety, transient and neutronics analytical codes and methods to be used by the NRC for confirmatory analysis of advanced HTGR designs.

## Key Deliverable:

- Report on generic modeling and validation issues associated with the safety analysis codes and methods to be used by the NRC to perform confirmatory analyses of HTGR designs - May 2003

3. Participation in International Gas Reactor Safety Activities - support NRC participation in conferences and meetings on technical and safety issues for HTGRs.

## Key Deliverables:

- Conference and meeting reports

4. HTGR Fuel Test Program Assessment - DOE is developing an HTGR fuel qualification program. NRC will identify generic issues associated with proposed HTGR fuel qualification programs. NRC reviews of these programs will involve identifying generic issues associated with these programs in the following areas: fuel irradiation experiments, tests and analysis specification, and identification of performance requirements for advanced gas reactor fuels. Initial tasks involve one lead NRC technical expert to identify the generic safety and technology issues associated with proposed fuel qualification program plans. NRC technical experts will not establish or identify key design/operational performance criteria of HTGR fuel. Furthermore, NRC will not make any judgments about the adequacy, suitability or completeness of DOE's HTGR Fuel Qualifications Programs

## Key Deliverables:

- Identification of the key generic technical and safety issues associated with proposed fuel qualification program plans and resolution paths - May 2003

Attachment