



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

JAN 29 2002

Purdue Research Foundation
ATTN: Thomas Wright
1063 Hovde Hall, Purdue University
West Lafayette, IN 47907-1063

Dear Mr. Wright:

SUBJECT: TASK ORDER NO. 15 ENTITLED "PARCS FOR ADVANCED REACTORS"
UNDER CONTRACT NO. NRC-04-97-046

In accordance with Section G.4, Task Order Procedures, of the subject contract, this letter definitizes Task Order No. 15. This effort shall be performed in accordance with the enclosed Statement of Work. The period of performance for Task Order No. 15 is February 1, 2002 through December 31, 2002. The total estimated cost for full performance of the basic task order is \$91,000. Funds in the amount of \$91,000 are hereby obligated for performance of this task order.

Accounting data for Task Order No. 15 is as follows:

B&R No.: 260-15-12-012-7
Job Code: Y-6582
BOC Code: 252A
RES ID: RES-C02-358
Appropriation No.: 31X0200
Obligated Amount This Action: \$91,000

The following individuals are considered by the Government to be essential to the successful performance of the work hereunder:

[REDACTED]

The contractor agrees that such personnel shall not be removed from the effort under this task order without compliance with Contract Clause H2 Key Personnel

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Purdue

Contract No. NRC-04-97-046
Task Order No. 15
Page 2 of 2

The issuance of this task order does not amend any terms or conditions of the subject contract.

Your contacts during the course of this task order are:

Technical Matters: James Han, Project Officer
(301) 415-6773

Contractual Matters: Stephen Pool, Contract Specialist
(301) 415-8168

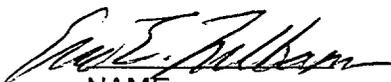
Please indicate your acceptance of this task order by having an official, authorized to bind your organization, execute three copies of this document in the space provided and return two copies to the Contract Specialist. You should retain the third copy for your records.

Sincerely,


Stephen M. Pool, Contracting Officer
Division of Contracts and Property
Management

Enclosure:
As stated

ACCEPTED: TASK ORDER NO. 15


NAME

FEB 6 2002
DATE

Eric E. Fulkerson
Sr. Contract Manager

TITLE

Statement of Work for Task Order #15, "PARCS for Advanced Reactor," under Contract # NRC-04-97-046, "Thermal-Hydraulic Research"

I. Background

The NRC needs to modify and improve the computer codes for licensing analysis of the Pebble Bed Modular Reactor (PBMR), which uses pebbles filled with small fuel spheres with helium as fuel. The PARCS code has been chosen as the NRC's reactor kinetics code and is currently being maintained and updated at Purdue. However, the PARCS solver in its current form cannot adequately model the PBMR reactor core. This task order will remove this limitation by adding a cylindrical geometry nodal diffusion theory solver to PARCS.

II. Objectives

The objectives are to add modeling capability to PARCS for analyzing the PBMR reactor core and to provide PARCS improvements and maintenance.

III. Work Requirements (2/1/02 - ~~2/15/02~~ 2/1/02)

Three tasks will be performed.

Task 1. Cylindrical Geometry Model Development for PBMR Analysis

PBMR analysis requires a cylindrical geometry solver. This solver must be capable of predicting reactor eigenvalues and core power distributions. This task adds a cylindrical geometry solver to the existing PARCS framework (developed under Task Order #8 of the same contract). The work will be performed in collaboration with Prof. K. Ivanov of PSU. An SQA document will be provided in both text and electronic format. The new source code will be implemented into the NRC version of PARCS.

Estimated Level of Effort: 8.8 staff-months
Estimated Completion Date: ~~January 15, 2002~~
Dec 31

Task 2. PARCS Improvements and Maintenance

Periodic changes made to the TRAC-M code require modifications to the interface codes. Benchmark exercise using PARCS may lead to necessary model improvements. This task provides periodic PARCS improvements and maintenance for use as a module in the TRAC-M code.

Estimated Level of Effort: 1 staff-month
Estimated Completion Date: ~~January 15, 2002~~
Dec 31, 2002

Task 3. Provide Technical Support

This task provides technical support in terms of attending meetings, making presentations, reviewing technical reports, and performing additional analysis and calculations as requested by the NRC Technical Monitor.

Estimated Level of Effort: 0.2 staff-month
Estimated Completion Date: ~~January 15, 2003~~
Dec 31, 2002

IV. Monthly Progress Report

In addition to the deliverables listed above for each task, we will provide a monthly technical progress report by the 20th of the following month. The report will summarize activities of the month under this Task Order, to include the work performed during the period, milestone status, and anticipated and encountered problem areas.

V. Meetings and Travel

Two one-day meetings are expected to take place at the NRC headquarters in Rockville, Maryland. The meeting will be attended by one or two persons from this Task Order. All travel will be approved in advance by the NRC Technical Monitor.