



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

MAR 11 2002

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

Dear Mr. Wright:

SUBJECT: MODIFICATION NO. 13 TO TASK ORDER NO. 6 ENTITLED "SNAP RUNTIME  
AND OUTPUT VISUALIZATION DEVELOPMENT" 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. 6 Modification No. 13. This effort shall be performed in accordance with the enclosed Statement of Work. Only tasks 19 through 22 are initiated by this modification. Optional tasks 23 through 26 may be exercised in the future only by modification to this task order. The period of performance for Task Order No. 6 is extended from January 9, 1998 through November 30, 2002. The total estimated cost for performance of the task 1 through 22 is increased by \$250,000 from \$910,918 to \$1,160,918. Funds in the amount of \$250,000 are hereby obligated for performance of this task order bringing the total obligated funds from \$910,918 to \$1,169,918. The estimated cost of the optional tasks is set forth as follows: Task 23, \$29,600; Task 24 \$34,600; Task 25 \$97,000 and Task 26 \$55,600.

Accounting data for Task Order No. 6 MOD 13 is as follows:

B&R No.: 260-15-11-020-5  
Job Code: Y-6325  
BOC Code: 252A  
RES ID: RES-C02-341  
Appropriation No.: 31X0200  
Obligated Amount This Action: \$250,000

Purdue

Contract No. NRC-04-97-046

Task Order No. 6 MOD 13

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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. 6 MOD 13



NAME

3/15/2002  
DATE

**Eric E. Fulkerson**  
**Sr. Contract Manager**  
TITLE

Modification (No. 13) to the Statement of Work for Task Order #6, "SNAP Runtime and Output Visualization Development," under Contract No. NRC-04-97-046, "Thermal-Hydraulic Research"

**Additional Work Requirements (1/16/02 - 11/30/02)**

Modify the existing Tasks 19 and 20, and add new Tasks 21 and 22 to the SOW. Four optional tasks, Tasks 23 through 26, are also included. The optional tasks will be performed only if additional funding is provided in the future.

**Task 19. Testing, Error Corrections, and Distribution**

Test the code on a suite of RELAP5 and TRAC-M calculations and experimental data sources. Errors discovered during testing will be corrected as necessary. Evaluate and correct errors reported by the SNAP user community. Maintain a multi-platform, SNAP installation package to support code distribution. Maintain and extend SNAP user manuals in HTML format.

Estimated Level of Effort: 2 staff-months (for this performance period)  
Estimated Completion Date: November 30, 2002

**Task 20. Provide Technical Support**

This task provides technical support to the NRC. The work includes making presentations, attending meetings, reviewing technical reports, and providing technical consultation and support to ISL and LANL as requested by the NRC Technical Monitor.

Estimated Level of Effort: 0.5 staff-month (for this performance period)  
Estimated Completion Date: November 30, 2002

**Task 21. TRAC-M Pre-Processing and Post-Processing Package**

Continue the development of the TRAC-M ModelEditor component to support the current TRAC-M functionality. Complete the development effort required to create TPR files. Develop the capabilities to submit calculations from the ModelEditor and to restart from previous calculations. Develop the capabilities to visualize the vessel internal components and transient fluid conditions and to plot axial profiles at a specified time for both hydraulic components and heat structures with fine meshes.

Estimated Level of Effort: 14.5 staff-months  
Estimated Completion Date: November 30, 2002

**Task 22. AcGrace Modifications**

Modify AcGrace (a replacement of Xmgr5) to handle new file output formats produced by thermal-hydraulic codes. Correct errors discovered in AcGrace. Update the AcGrace user's manual as appropriate.

Estimated Level of Effort: 1 staff-month  
Estimated Completion Date: November 30, 2002

**Task 23. RELAP5 Pre-Processing and Post-Processing Package (Optional)**

Maintain the SNAP package for the RELAP5 code. Add support for non-rectangular visualization elements. Migrate from ORBacus CORBA implementation to OpenORB. Investigate the replacement of the client-pull model with a push-server design and the feasibility to develop a general visual project management system supported by the database.

Estimated Level of Effort: 2 staff-months  
Estimated Completion Date: November 30, 2002

**Task 24. TRAC-M 3-D Kinetics Pre-Processing and Post-Processing Package (Optional)**

Evaluate the TRAC-M 3-D kinetics package to identify any changes needed to output a structured graphics file. Design and initiate the development of VEDA components to display 2D axial data and 3D core power distributions. Evaluate the existing ModelEditor design for changes to facilitate the development of a TRAC-M 3-D kinetics package ModelEditor component.

Estimated Level of Effort: 6 staff-months  
Estimated Completion Date: November 30, 2002

**Task 25. MELCOR Pre-Processing and Post-Processing Package (Optional)**

Develop the MELCOR plugin for SNAP to provide runtime and post-processing capability. Create a MELCOR-specific syntax highlighting definition for JEDITOR. Evaluate the existing ModelEditor design for changes to facilitate the development of a MELCOR ModelEditor component.

Estimated Level of Effort: 2 staff-months  
Estimated Completion Date: November 30, 2002

**Task 26. Advanced Reactor Model Visualization (Optional)**

Design and initiate the development of a spherical heat structure visualization capability. Provide support for possible additional TRAC-M components and features designed for PBMR applications, such as the SHAFT control block, multiple non-condensable gases, compressor component, as they become available. Modify and add ability to create, edit, and export 3D-model visualization using JAVA-3D API.

Estimated Level of Effort: 3 staff-months  
Estimated Completion Date: November 30, 2002

**Meetings and Travel:**

The contractor is expected to attend two meetings at the NRC office in Rockville, Maryland. For planning purpose, each meeting will involve up to two people and last for one day. In addition, the contractor may also attend a technical conference in the U.S. However, any travel must be approved in advance by the NRC Technical Monitor.