



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

JUL 26 2002

Information Systems Laboratories, Inc.  
ATTN: James Meyer  
11140 Rockville Pike, Suite 500  
Rockville, MD 20852

SUBJECT: TASK ORDER NO. 5 ENTITLED, "INTEGRATED ANALYTIC METHODOLOGY AND TOOLS FOR ADVANCED REACTOR SYSTEM ANALYSES" UNDER CONTRACT NO. NRC-04-02-054

Dear Mr. Meyer:

This letter definitizes Task Order No. 5 in accordance with the enclosed statement of work. The period of performance for Task Order No. 5 is July 26, 2002 through July 25, 2004. The task order estimated cost and fixed fee is set forth as follows: Estimated Costs \$299,110 Fixed Fee \$ 23,929 CPFF Total \$323,929. \$271,000 in funds is hereby allotted to this task order of which \$250,236 represents funds for the estimated cost and \$20,764 represents funds for the fixed fee The accounting data for this task order is set forth as follows: RES ID: RES-C02-454 APPN: 31X0200 B&R:26060110840 JCN:Y6708 BOC: 252A Amount: \$271,000.

The Contractor shall not incur any cost on this task order beyond July 31, 2003 without prior written approval of the NRC Contracting Officer. Please indicate your acceptance of Task Order No. 5 by having an official authorized to bind your organization execute three copies of this document, by signing in the space provided, and return two copies to me. You should retain the third copy for your records.

Should you have any questions, regarding this task order, please contact me on (301) 415-8168.

Sincerely,

*Mary H. Mace*  
Mary H. Mace, Contracting Officer  
Division of Contracts  
Office of Administration

ACCEPTED:

*[Signature]*  
\_\_\_\_\_  
NAME  
*V.P.*  
\_\_\_\_\_  
TITLE  
*7/30/02*  
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TASK ORDER NO. 5  
STATEMENT OF WORK  
INTEGRATED ANALYTIC METHODOLOGY AND TOOLS FOR ADVANCED  
REACTOR SYSTEM ANALYSES

BACKGROUND:

The recent renewed interest by the electric utility industry in the deployment of additional capacity in the form of advanced, and especially non-light-water reactors, has prompted the USNRC to assess its analysis methodology and analytic tools in light of the need to respond to possible license applications for advanced reactors in a timely and cost effective manner, and, thereby, reducing the regulatory burden to industry. To this end, the required analyses, especially in a risk informed framework, need to be reassessed, adopted to new systems and developed with an integrated accounting of uncertainties through out the safety analysis methodology. Key to this methodology is the computational integration of the computer codes that account for the nuclear, thermal-hydraulic, and material behavior of reactor components and systems during steady state, transient, and accident conditions. The purpose of this task order is to conduct various analytical studies and tests/experiments to better define parameter relationships across the analysis methodology, create and validate consistent input-output interfaces for the codes and refine our understanding of uncertainties associated with potential accident scenarios.

OBJECTIVE:

The work performed under this task will assess the modeling by the codes against integral experiments with various conditions in view of their application to advanced reactors. In particular, the consistency of the analysis methodology based on the integrated application of the requisite sequence of codes and data in the context of specific advanced reactor designs needs to be tested. This will require parametric assessment runs that reflect previous research results and integrate new/recent results and requirements in a manner intended to minimize testing. In addition, these integrated parametric assessment runs will be used to identify and quantify the key parameters that contribute to risk with regard to the deployment of advanced reactor systems.

WORK REQUIREMENTS:

All work for tasks 1-4 will performed at NRC headquarters. It is anticipated that performance of up to 50% of the effort may be required during non-standard work hours.

Task 1:

In light of the safety analysis needs of advanced reactor licensing, taking into account risk information, conduct a review of requisite selected codes, research results, models, sensitivity to parameters, and uncertainty associated with the key individual parameters.

**Task 2:**

Identify the parameters that an integrated analysis based on the code results is most sensitive too. Examine models provided by NRC for their adequacy and associated uncertainty.

Identify potential research/testing needs.

**Task 3:**

Conduct the necessary systematic integrated advanced reactor system analyses and carry out and integrate into the methodology the testing as defined in task 2.

**Task 4:**

Provide comparison of revised and current code(s) results which illustrate/establish parameter definition improvements and uncertainty improvement(s). All new coding should be fully tested.

**SCHEDULE AND DELIVERABLES**

The project and all tasks are projected to run for two years. Deliverables will come in the form of written reports documenting the findings of the work performed under each task and will be provided at the completion of the project. Monthly progress reports on tasks 1-4 will be required.

**FINANCIAL AND TECHNICAL STATUS REPORTS**

The contractor shall submit a monthly technical report in accordance with Section F.3 (Technical Progress Reports) and a monthly Financial Status Report in accordance with Section F.4 (Financial Status Report) of the basic contract. The estimate of staff effort should be reported at the subtask level. The work accomplished and the degree of completeness should also be tracked by subtask. The reports are due within 15 calendar days after the end of the report period.