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

MAR 13 2002

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

SUBJECT: TASK ORDER NO. 3 ENTITLED, "BWR SYNERGY" UNDER CONTRACT NO. NRC-04-02-054

Dear Mr. Meyer:

This letter definitizes Task Order No. 3 in accordance with the enclosed statement of work. The period of performance for Task Order No. 3 is March 15, 2002 through December 31, 2002. The task order estimated cost and fixed fee is set forth as follows: Estimated Costs $333,936 Fixed Fee $ 25,586 CPFF Total $359,522. $283,000 in funds is hereby allotted to this task order of which $262,860 represents funds for the estimated cost and $20,140 represents funds for the fixed fee. The accounting data for this task order is set forth as follows: APPN: 31X0200 B&R:26015110201 JCN:Y6522 BOC: 252A Amount: $283,000

Please indicate your acceptance of Task Order No. 3 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.
All other terms and conditions of this task order remain unchanged.

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

Sincerely,

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

ACCEPTED:

NAME

V.P.

TITLE

3/15/02

DATE

TEMPLATE- ADM 001

ADM 02

Attachment

Task Order #3 Statement of Work
BWR Synergy

BACKGROUND

The USNRC Office of Nuclear Reactor Regulation (NRR) has begun to receive and review license amendments that will allow BWRs to increase their thermal power by up to 20% above their originally licensed power. (PWR power uprates are not as large and may be addressed in the future). The USNRC Office of Research (RES) is beginning a confirmatory research program to examine the risk increase to plants that undergo large power uprates. License amendments are being submitted and reviewed using the deterministic plant licensing basis following the traditional Standard Review Plan (NUREG-800).

Concerns have been raised about the impact of large power uprates combined with other changes and their effect on the overall risk of the plant. The primary concern is that synergistic effects from the interaction of individual changes such as the power uprate, aging effects from plant life extension, longer operating cycles, and the use of high burnup fuel will have a much larger impact on plant risk than simply adding the risk increases from the individual changes.

The USNRC Office of Nuclear Regulatory Research (RES) is beginning a confirmatory research program to examine the risk increase to plants that undergo large power uprates. RES has developed a program plan to investigate the existence of synergistic effects and evaluate their impact on plant risk in large BWR power uprates. As part of the effort to examine the effect of the large power uprates on plant safety the program will also look at previously resolved generic issues to see if any are sensitive to the operating power. The study will also try to determine if there are any inherent limits that prevent future power uprates.

OBJECTIVE

This work performed under this task order will assess the TRAC-M code against integral experiments with conditions typical of an ATWS. The assessment runs should not be performed until level tracking is implemented in the vessel component. Additional work will involve the review of all activities that will be performed under the synergistic effects program plan.

WORK REQUIREMENTS

Task 1: TRAC-M Assessment

Perform assessment of the following FIST experiments:

6PMC2 (ATWS)
6PNC1-2B (NC)
6PNC1-4 (NC)
6PNC1-6 (NC)
6PNC1-7A (NC with subcooled downcomer injection)
PTT1 (turbine trip)

calculations for all six experiments, c) comparing code results to experimental data, and d) determining differences between code results and data, and explaining reasons for these differences.

The deliverable will be TRAC-M input and output files for all six cases. These files will be archived on the NRC data bank.

Estimated Level of Effort: 2.25 staff-months per experiment
Estimated Completion Date: 11/15/02

Task 2: Documentation

Document all TRAC-M assessments (calculations and analyses) as a NUREG/CR. This should consist of a description of: a) the input model for TRAC-M, b) any updates that were made to the previously existing FIST model for the current TRAC-M assessments, c) an overview of the six TRAC-M calculations/analyses that were done for FIST, d) a discussion of the sensitivity/uncertainty studies that were performed; and e) a discussion of known problems and limitations of the current studies.

The deliverable will be a NUREG/CR report.

Estimated Level of Effort: 1.5 staff-months
Estimated Completion Date: 12/31/02

Task 3: Integration of Activities Under Synergistic Effects Task Action Plan

Review all activities that will be performed under the synergistic effects program plan and their integration into a final product. This work consists of the following:

a. Review the synergistic effects task action plan and relevant background materials.

b. Identify the parts of the plan that are redundant to the regulatory process.

c. Identify any possible sources of synergistic effects that are not listed in the plan.

d. Identify risk assessment techniques suitable for quantification of the incremental risk of synergistic effects.

e. Make recommendations in a letter report for refining the task action plan.

Estimated Level of Effort: 2 staff months
Estimated Completion Date: 7/31/02