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

FEB 11 2004

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

SUBJECT: MODIFICATION NO. 10 TO TASK ORDER NO. 1 ENTITLED, "PTS ANALYSIS" UNDER CONTRACT NO. NRC-04-02-054

Dear Mr. Meyer:

This letter definitizes Modification No.10 to Task Order No.1 in accordance with the enclosed Statement of Work (SOW). The period of performance for Task Order No. 1 remains to run from December 20, 2001 through September 30, 2004. The task order estimated cost and fixed fee are increased as shown below:

	From :	By:	To:
Est Cost:	$849,170;	$168,822	$1,017,992
Fixed Fee	$ 67,262;	13,506	$ 80,768
Total CPFF	$916,432.	$182,328	$ 1,098,760

$182,328 JFL

$75,000 are allotted by this task order modification. APPN and accounting data as as follows: RES-C04-358, 31X0200, 46015110191, Y6598, 252A, $75,000.

Please indicate your acceptance of Modification No. 10 to Task Order No. 1 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
Office of Administration

ACCEPTED:

NAME V.P.

TITLE

2/12/04

Note fixed typo

TEMPLATE - ADM001

ADM002

STATEMENT OF WORK
TASK ORDER NO. 1
MODIFICATION NO. 10
PTS ANALYSIS

WORK REQUIREMENTS

Task 1: Data Roughness

In performing RELAP5 PTS analyses for the Palisades, Beavor Valley, and Calvert Cliffs nuclear power plants in 2003, ISL submitted discrete RELAP5 data points once every 30 s to be used as FAVOR boundary conditions. This may have resulted in instantaneous roughness of input boundary conditions to the FAVOR calculations. If one data point was out of line, it would make itself felt over a one minute time period, which is significant in terms of the conduction calculation and time step in FAVOR.

a. Rerun the 30 Palisades cases with RELAP5 recording output every 1 second (or so) and perform a smoothing function such as a 15s running average to obtain data points to be fed to FAVOR. RES will compare both sets of FAVOR Palisades results to see if there is a difference. If there is, repeat this same process for Beaver Valley and Calvert Cliffs.

b. Redo the 4 experiments (3 ROSA and 1 MIST) that were run previously with the experimental data and the associated RELAP5 calculations smoothed in a similar manner.

c. For large breaks LOCAs, FAVOR used 30s time steps for the boundary conditions obtained from RELAP5. The larger break LOCAs which contribute a majority of the total risk, however, predict vessel failure in a matter of minutes. Therefore, FAVOR may take only ~10 T-H time steps before the vessel fails. This does not seem to be nearly enough. Calculate the fast transients with on the order of ~50 time steps to the time of vessel failure.

d. The uncertainty in heat transfer coefficient has not been considered. Mixed convection can provide heat transfer enhancement at low flow velocities. The lower the flow velocity, the greater the effect. It becomes significant at velocities less than ~1 ft/s. At 3 ft/s there is no enhancement. At the very least, rerun all the Palisades cases varying the heat transfer coefficient by x 2 and x 0.5.

e. A peer review comment was made that the effects of T-H uncertainty should be separated from event sequence uncertainty. The University of Maryland is evaluating what additional RELAP5 runs to make to evaluate this issue and will provide ISL with the T-H uncertainty sequences for ISL to run to be fed to FAVOR.

Estimated level of effort: 4 staff-months senior engineer

5 staff-months principal engineer

Estimated completion date: 4/30/04