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

JAN 31 2003

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

SUBJECT: MODIFICATION NO. 2 TO TASK ORDER NO. 4 ENTITLED, "AP1000 ANALYSIS" UNDER CONTRACT NO. NRC-04-02-054

Dear Mr. Meyer:

This letter definitizes Task Order No. 4 Modification No. 2 in accordance with the enclosed statement of work. The period of performance for Task Order No. 4 remains May 13, 2002 through February 28, 2003. The task order estimated cost and fixed fee is increased as follows:

	From:	By:	To:
Estimated Costs	$252,539	$21,581	$274,120
Fixed Fee	$ 19,585	1,715	21,300
CPFF Total	$272,124.	$23,296	$295,420

$22,000 in funds is hereby allotted to this task order bringing the total obligated amount to $294,124 of which $272,917 represents funds for the estimated cost and $21,207 represents funds for the fixed fee. The accounting data for this task order is set forth as follows: RES ID: RES-C03-336 APPN: 31X0200 B&R:36015115103 JCN:Y6662 BOC: 252A Amount: $22,000.

Please indicate your acceptance of Task Order No. 4 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 task order, please contact me on (301) 415-8168.

Sincerely,

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

ACCEPTED:

SIGNATURE	TITLE	DATE
	V.P.	2/10/03

TEMPLATE - ADM001

ADM002

STATEMENT OF WORK
TASK ORDER NO. 4, MOD 2
AP1000 ANALYSIS

BACKGROUND

The AP1000 containment is 20 feet taller and the shell is slightly thicker than the AP600 shell. The design pressure is higher, so internal steam temperatures can be higher for AP1000. Several issues related to these differences were identified by RES. The issues relate to the models used to predict film coverage, and to the experimental data upon which the film flow coverage models are based.

OBJECTIVE

The objective of this task order is to obtain the available information regarding film flow coverage and thermal striping relevant to AP1000 post accident conditions, and to investigate the applicability of this information to determine adequacy of the AP1000 film coverage analysis. If possible, the information will also be used to develop input for thermal stress analysis.

WORK REQUIREMENTS

Task 1: Review Westinghouse AP600 and Phase II AP1000 Information Concerning PCCS Film Modeling

Review Westinghouse AP600 and Phase II AP1000 information concerning PCCS film modeling. Collect information to address the following issues:

a) Given the design differences between the AP600 and AP1000 containment shells, will AP1000 exhibit the same wall coverage fraction as the AP600 when the PCCS is active?

b) Are there film flow striping conditions that may exist in AP1000 that make heat transfer from the containment shell worse than AP600 with regards to containment integrity?

c) Can AP1000 reach stress conditions such that thermal stresses might be more severe than in the AP600?

Prepare a letter report summarizing the expected changes between AP600 and AP1000 PCS film flow conditions. If possible, identify boundary conditions for DET to do a structural analysis (hand calculations only; no computer calculations).

Estimated Level of Effort: 0.3 staff-months
Estimated Completion Date: 2/21/03

Task 2: Identify Sources of Uncertainty and Conservatisms in Current Westinghouse Modeling Approach

Investigate the current Westinghouse film flow approach and answer the following questions:

a) Is the film stability and heat transfer performance of the AP1000 PCCS bounded by the tests performed by Westinghouse for the AP600?

c) Are the AP1000 wall coverage fractions within the range of tests performed by Westinghouse for the AP600?

d) Is it necessary and/or desirable that more tests be run to investigate the PCCS performance?

Prepare a letter report discussing the uncertainties and conservatisms in modeling the AP600 and the AP1000 and the desirability of the NRC sponsoring more tests of the PCCS performance.

Estimated Level of Effort: 0.4 staff-months
Estimated Completion Date: 2/21/03

Task 3: Review Film Stability and Heat Transfer Research Since 1998 Approval of AP600

Investigate and determine whether information has been developed in the US or overseas (especially in Japan) that challenges or supports the film flow modeling approach used for AP600.

Prepare a letter report discussing the new film stability and heat transfer research results and their impact on the film modeling approach used by Westinghouse for AP1000.

Estimated Level of Effort: 0.3 staff-months
Estimated Completion Date: 2/21/03