AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

BPA NO.	1. CONTRACT ID CODE	PAGE	OF PAGES
		1	2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
M001	See Block 15C	NRC-03-03-038 T26M01	

6. ISSUED BY CODE 3100

U.S. Nuclear Regulatory Commission
Div. of Contracts
Attn:
Mail Stop T-7-I-2
Washington, DC 20555

7. ADMINISTERED BY (If other than Item 6) CODE 3100

U.S. Nuclear Regulatory Commission
Div. of Contracts
Mail Stop T-7-I-2

Washington, DC 20555

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

INFORMATION SYSTEMS LABORATORIES, INC
ATTN: DR. JAMES F. MEYER

11140 ROCKVILLE PIKE, SUITE 500

ROCKVILLE MD 20852

CODE 107928806 FACILITY CODE

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
	10A. MODIFICATION OF CONTRACT/ORDER NO. NRC-03-03-038 TO26
X	10B. DATED (SEE ITEM 13) 02-23-2006

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
BB&R #:620-15-113-103 Job Code:J-3272 BOC: 252A
Appropriation#:31X0200.620 Amt: $25,584

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(X)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Bilateral Mutual Agreement of Both Parties
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Refer to attached Page Two for a description of Modification One.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
Scott Newberry VP	Donald A. King Contracting Officer
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED 9/26/06
16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)	16C. DATE SIGNED 9/29/06

STANDARD FORM 30 (REV. 10-83)

TEMPLATE - ADM001

SUNSI REVIEW COMPLETE

ADM002

The purpose of this modification to (1) Increase the level of effort required for performance under this task order, (2) Renumber Task 4 as Task 6, (3) Add a new Task no. 4, and Task no. 5, (4) Change the requirements for deliverables to replace existing Item 6 with a new Item 6 and add Items 7 and 8, (5) Extend the period of performance from October 31, 2006 to November 30, 2006, (5) Increase the Task Order ceiling by $25,584 from $73,115 to $98,699 and (6) Incrementally fund this order in the amount of $25,584 from $73,100 to $98,684. Accordingly the task order is modified as follows:

Refer to the attached Statement of Work for Modification No. 1 to Task Order 26 entitled "TRACE Input Deck Development for ESBWR Design Certification pertaining to LOCA Analysis" for a description of the requirements for the tasks that are being added and replaced, and the changes to the deliverables under this Task Order.

Page 2 of 2 under the base Task Order 26, paragraph 2 is hereby deleted in its entirety and replaced with the following:

> "Task Order No. 26 shall be in effect from May 15, 2006 through November 30, 2006, with a cost ceiling of $98,699. The amount of $91,390.00 represents the estimated reimbursable costs, and the amount of $7,309.00 represents the fixed fee."

A summary of obligations for this contract, from award date through the date of this action, is given below:

Total FY06 Obligation Amount:	$98,684.00

This modification obligates FY06 funds in the amount of $25,584.

All other terms and conditions remain the unchanged.

Modification No. 1 to
ISL Task Order No. 26 Under JCN J-3272

Title: TRACE Input Deck Development for ESBWR Design Certification Pertaining to LOCA Analysis

BACKGROUND INFORMATION AND NEED FOR THE MODIFICATION

This task order was initiated for ISL to assist the NRC staff with the loss-of-coolant accident (LOCA) analysis to support ESBWR design certification. The staff plans to use the TRACE thermal hydraulics computer code to perform independent calculations of the system response in the event of a LOCA. ISL is developing the TRACE input decks that will represent the ESBWR.

As part of Task Order 4 (JCN J-3149), ISL developed input decks for the main steam line (MSL) break and the gravity driven line (GDL) break, which were, at that time, stated by GE to be the most limiting breaks and were used to perform the pre-application review of the TRACG code. At the time the SOW for Task Order 26 was drafted, GE's most limiting break according to their design certification documentation (DCD) Rev. 0 was the feedwater line (FWL) break. In Task Order 26, ISL is tasked with developing the FWL break input deck and perform assessment/analysis for the FWL, MSL, and GDL break event behavior. In the interest of time and resources, the bottom drain line (BDL) break was not included because it was not used to license TRACG, and was not stated as the limiting break at the time. In Rev. 1 of the DCD, GE changed the most limiting break for ESBWR to the BDL break.

In light of the latest design information from GE, the BDL break is now an important LOCA for the staff to perform independent calculations. The modification of this task order will add the BDL break input deck and analysis/assessment of the BDL break event behavior.

WORK REQUIREMENTS AND SCHEDULE:

Tasks	Completion Schedule
RENUMBER: Task 4 as Task 6.	
ADD: New Task 4 as follows:	
4. Using TRACE input decks developed under Tasks 1 and 2 as a baseline input deck, develop the ESBWR TRACE stand-alone modeling for the Bottom Drain Line Break (BDLB) LOCA analysis using design certification information. Prepare a technical letter report.	Two weeks after authorization of the modification.
ADD: Task 5 as follows:	
5. Using the updated input decks from Task 4, assess the BDLB LOCA model by performing the transient analysis. Consult with the Technical Monitor as necessary to discuss and change in the parameters or other values when the results of the analyses do not attain or yield the expected outcomes; make the agreed-upon adjustments and complete the analysis. Prepare a technical letter report.	Two weeks after completion of Task 4.

DELIVERABLES

Technical Reporting Requirements

REPLACE: Item 6 as follows:

6. At the completion of Task 4, submit a technical letter report that contains the BDL LOCA TRACE standalone 4500 MWt input deck, nodalization diagram and calculation notes including a list of important assumptions.

ADD: Item 7 as follows:

7. At the completion of Task 5, submit a technical letter report that contains applicable plots of thermal hydraulic parameters vs. time for the BDL LOCA analysis, updated input deck if necessary description of changes made if any, updated nodalization diagrams if different, calculation notes on updates

ADD: Item 8 as follows:

8. At the completion of work on Task 6, submit a technical letter report that contains the full results of the work performed in Tasks 1, 2, 3, 4 and 5 in the following format and content:

   - Assumptions.
   - Nodalization diagrams.
   - Table of steady-state parameters. The table shall include but not necessarily be limited to: steam dome pressure, feedwater temperature, feedwater flow, downcomer flow, downcomer level, core inlet subcooling, core exit void fraction.
   - Plots of important steady state thermal hydraulic parameters such as void fraction in the hot channel as a function of core height and axial power distribution
   - Evaluation of the event scenario for the MSL, GDCS, FWL and BDL LOCA events. This shall include a narrative description of the LOCA event including: the reactor scram signal, initiation of ECCS injection, etc.
   - Plots of important thermal hydraulic phenomena for each of the MSL, GDCS, FWL and BDL LOCA events. Plots should include all important phenomena for evaluating the LOCA events and should include at a minimum a plot of the following parameters vs. time: PCT, level in the core/chimney and downcomer, void fraction in the PCT node, core temperature and pressure, drywell and wetwell temperature and pressure, mass flow rate out the break, injection flow rate, and steam dome pressure.

   Include as an attachment, CDs which contain input decks, output files, and restart files used to perform the above evaluations