

ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1 5

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER 11/17/2008		2. CONTRACT NO. (if any) NNL05AA01B		6. SHIP TO: a. NAME OF CONSIGNEE NASA/ Langley Research Center	
3. ORDER NO. NNL09AA33T		4. REQUISITION/REFERENCE NO 4200274376		b. STREET ADDRESS	
5. ISSUING OFFICE (Address correspondence to) NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199				c. CITY Hampton	
				d. STATE VA	e. ZIP CODE 23681-2199
7. TO: ██████████				f. SHIP VIA	
a. NAME OF CONTRACTOR SCIENCE APPLICATIONS INTL CORP				8. TYPE OF ORDER	
b. COMPANY NAME				a. PURCHASE	
c. STREET ADDRESS 10260 CAMPUS POINT DR				REFERENCE YOUR:	
d. CITY SAN DIEGO				e. STATE CA	
				f. ZIP CODE 92121-1522	
9. ACCOUNTING AND APPROPRIATION DATA PR 4200274376				10. REQUISITIONING OFFICE NASA/Langley Research Center	
11. BUSINESS CLASSIFICATION (Check appropriate box(es))				12. F.O.B. POINT Destination	
<input type="checkbox"/> a. SMALL <input type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> g. SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> d. WOMEN-OWNED <input type="checkbox"/> e. HUBZone <input type="checkbox"/> f. EMERGING SMALL BUSINESS					
13. PLACE OF		14. GOVERNMENT B/L NO		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 12/31/2009	
a. INSPECTION Destination	b. ACCEPTANCE Destination			16. DISCOUNT TERMS nt30	

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
001	INCO TERMS 1: FOB INCO TERMS 2: DESTINATION Subject Matter Expertise for the NASA Engineering and Safety Center Continued ...				127,254.00	

18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO		17(h) TOTAL (Cont. pages)	
21. MAIL INVOICE TO:							
a. NAME NSSC Shared Services Center						\$0.00	
SEE BILLING INSTRUCTIONS ON REVERSE		b. STREET ADDRESS (or P.O. Box) Financial Management Division (FMD) Accounts Payable Bldg 1111, C. Road				\$127,254.00	17(i) GRAND TOTAL
c. CITY Stennis Space Center		d. STATE MS	e. ZIP CODE 39529				

22. UNITED STATES OF AMERICA
BY (Signature) 

23. NAME (Typed)
Anthony Kram
TITLE: CONTRACTING/ORDERING OFFICER

AUTHORIZED FOR LOCAL REPRODUCTION
PREVIOUS EDITION NOT USABLE

OPTIONAL FORM 347 (Rev. 9/2005)
Prescribed by GSA/FAR 48 CFR 53.213(e)

**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

PAGE OF PAGES

2 5

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER 11/17/2008	CONTRACT NO. NNL05AA01B	ORDER NO. NNL09AA33T
-----------------------------	----------------------------	-------------------------

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY ORDERED (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)	QUANTITY ACCEPTED (G)
	<p>Task Order entitled "Subject Matter Expertise for the NASA Engineering and Safety Center" in accordance with the attached task summary and the contractor's proposal dated 11/13/2008. *NOTE: This Task Order is subject to FAR 52.232-22, Limitation of Funds. The Contractor is only authorized to incur up to the cost limitation set forth in the Task Summary.</p> <p>ESTIMATED COST: ██████████ ESTIMATED FEE: ██████████ *TOTAL COST-PLUS-FIXED FEE:\$127,254.00</p> <p>Acknowledge receipt and acceptance of subject Task Order by signing below and returning to the address in Block 5:</p> <p>Robin Amburn Grob, Contracts Manager _____ (Printed Name) (Title)</p> <p><i>Robin Amburn Grob</i> 12/4/08 _____ (Signature) (Date)</p>					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))

TASK ORDER SUMMARY

1. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-20 "Limitation of Cost" applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 is incorporated as follows:

"CONTRACT FUNDING, (NFS 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this Task Order is [REDACTED]. This allotment is for this task order and covers the following estimated period of performance: 17 November 2008 through 31 December 2009.

(b) An additional amount of [REDACTED] is obligated under this Task Order for payment of fee.

(End of Clause)"

2. Perform tasks in accordance with the statement of work titled "Subject Matter Expertise for the NASA Engineering and Safety Center"

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254

NOTE: Period of performance for this task order is 17 November 2008 through 31 December 2009.

**Science Applications International Corporation
Contract NNL05AA01B
Task Order Statement of Work**

Task Number: 59

Replaces Task #23 (NNL06AA77T)

1. Task Order Title:

Subject Matter Expertise for the NASA Engineering and Safety Center

2. Purpose, Objective, and Background of Work to be Performed:

The purpose of this Task Order is to provide the NASA Engineering and Safety Center (NESC) with expert consultation, guidance and lessons learned by subject matter experts. The required expertise will be provided by consultants with experience relevant to the NESC's efforts to assess technical issues related to NASA's highly visible programs and projects, including, but not limited to, the Space Shuttle, the International Space Station (ISS), the Constellation program, science missions and aeronautics research.

The NESC conducts much of its technical efforts through Technical Discipline Teams (TDTs), which are groups of highly qualified individuals from across NASA along with members from industry and academia. These groups are discipline specific and are called upon to assess single discipline issues and provide discipline related expertise to broader assessments and investigations.

The NESC conducts Independent Technical Assessments and Investigations of issues or concerns in NASA's high-profile programs and projects. To do this, the NESC forms teams of experts from multiple disciplines to work together on these chosen technical concerns.

In all cases, the NESC will provide the team leads for these activities. Those leads will be responsible for the decisions and recommendations emanating from those teams. The contractor provided expertise is intended to add important technical insight and evaluation for those teams, their team leads and the programs they support.

3. Description of the Work to be Performed:

The Contractor shall perform the following task requirements:

THE CONTRACTOR will provide identified subject matter experts to participate in on-going design and management activities, as directed by the NASA Task Manager. These activities include:

- Participate in NESC Technical Discipline Team meetings
- Participate in NESC Independent Technical Assessment/Investigation Teams
- Attend key program reviews such as Systems Requirements Reviews, Preliminary Design Reviews, or Critical Design Reviews
- Travel, as required, to perform data acquisition, analysis, documentation, and meeting and briefing support
- Participate in telecons and face to face meetings, as required, to discuss issues and to evaluate and recommend alternate courses of action
- Provide independent assessment of program technical approaches, plans and technical products
- Provide recommendations for additional efforts where required
- Conduct value added analysis and/or test as required to support NESC assessments
- Provide lessons learned based on previous experience
- Participate in brainstorming sessions to identify possible design improvements to mitigate risks, necessary trade studies and critical subsystems that warrant additional design detail

- Support the acquisition and review of lessons-learned from heritage NASA programs, review data from the Agency lessons-learned database, and solicit/review/analyze systems level lessons-learned.
- Support and conduct external benchmarking activities including the assessment of requirements generation and application, conduct of trade studies, design and test standards, performance history, and lessons learned
- Prepare reports, develop findings and produce other documentation as needed
- Submit findings/comments to the appropriate team leads and the NESC

4. Deliverables:

The Contractor shall provide the following deliverables:

- For NESC Support to TDT Activities
 - Meeting and teleconference participation
 - Written reports of findings and recommendations
- For NESC Support to Technical Assessment/Investigation Activities
 - Meeting and teleconference participation
 - Written reports of findings and recommendations
 - Input to final report and accompanying briefing packages
- Monthly Technical Report
- Task Order completion memo and approval form

5. Government Furnished Items:

No use or provision of government furnished items is expected.

6. Period of Performance:

The Period of Performance shall be from the date of task issuance through December 31, 2009

7. NASA Task Monitor (TM):

Chris Johansen
M.S. 105, NASA Langley Research Center
Hampton, VA 23681
757-864-6077
chris.johansen@nasa.gov

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	PAGE OF PAGES
2 AMENDMENT/MODIFICATION NO	3 EFFECTIVE DATE	4 REQUISITION/PURCHASE REQ NO.	5 PROJECT NO. (if applicable)
000001	01/12/2009	4200279211	
6 ISSUED BY	CODE	7 ADMINISTERED BY (if other than Item 6)	CODE
NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	LARC	NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	LARC

8 NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code)	(x) 9A AMENDMENT OF SOLICITATION NO
SCIENCE APPLICATIONS INTL CORP Attn: [REDACTED] 10260 CAMPUS POINT DR SAN DIEGO CA 92121-1522	
	9B DATED (SEE ITEM 11)
	x 10A MODIFICATION OF CONTRACT/ORDER NO
	NNL05AA01B
	NNL09AA33T
	10B DATED (SEE ITEM 13)
	11/17/2008
CODE	FACILITY CODE

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 6 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 ACKNOWLEDGEMENT 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)
PR 4200279211 Net Increase: \$39,302.00

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

CHECK ONE	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).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF
	D OTHER (Specify type of modification and authority)
X	FAR 52.243-2 CHANGES -- COST REIMBURSEMENT (ALTERNATE V) (APR 1984)

E. IMPORTANT: Contractor is not. is required to sign this document and return 1 copies to the issuing office.

14 DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
The purpose of this modification is to add new sub-task in accordance with the statement of work and contractor's proposal dated 22 Dec 2008.

All other terms and conditions remain unchanged.

002 NNL05AA01B, Task Order 59 39,302.00

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)
Robin Amburn Grob, Contracts Manager	Ronald King
15B CONTRACTOR/OFFEROR	16B UNITED STATES OF AMERICA
<i>Robin Amburn Grob</i> (Signature of person authorized to sign)	<i>Ronald King</i> (Signature of Contracting Officer)
15C DATE SIGNED	16C DATE SIGNED
1/13/09	1/12/2009

NSN 7540-01-152-8070
Previous edition unusable

STANDARD FORM 36 (REV 10-63)
Prescribed by GSA
FAR (48 CFR) 53.243

TASK ORDER SUMMARY

1. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-20 "Limitation of Cost" applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 is incorporated as follows:

"CONTRACT FUNDING, (NFS 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this Task Order is [REDACTED]. This allotment is for this task order and covers the following estimated period of performance: 17 November 2008 through 31 December 2009.

(b) An additional amount of [REDACTED] is obligated under this Task Order for payment of fee.

(End of Clause)"

2. Perform tasks in accordance with the revised statement of work titled "Subject Matter Expertise for the NASA Engineering and Safety Center"

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPFF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254
Mod 1	[REDACTED]	[REDACTED]	\$166,556	[REDACTED]	[REDACTED]	\$166,556

NOTE: Period of performance for this task order is 17 November 2008 through 31 December 2009.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2 AMENDMENT/MODIFICATION NO: 000002
 3 EFFECTIVE DATE: 03/16/2009
 4 REQUISITION/PURCHASE REQ NO: 4200285670
 5 PROJECT NO (if applicable):

6 ISSUED BY: NASA/Langley Research Center
 98 Langley Blvd., Bldg. 1195B
 M/S 126
 Hampton VA 23681-2199
 CODE: LARC
 7 ADMINISTERED BY (if other than item 6): NASA/Langley Research Center
 98 Langley Blvd., Bldg. 1195B
 M/S 126
 Hampton VA 23681-2199
 CODE: LARC

8 NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code):
 SCIENCE APPLICATIONS INTL CORP
 Attn: ROBIN AMBURN GROB
 10260 CAMPUS POINT DR
 SAN DIEGO CA 92121-1522

(x) 9A AMENDMENT OF SOLICITATION NO:
 9B DATED (SEE ITEM 11):
 X 10A MODIFICATION OF CONTRACT/ORDER NO:
 NN105AA01B
 NN109AA33T
 10B DATED (SEE ITEM 11):
 11/17/2008

CODE: FACILITY CODE:

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 ACKNOWLEDGEMENT 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):
 4200285670 Net Increase: \$200,000.00

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

CHECK ONE
 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).
 C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF
 D. OTHER (Specify type of modification and authority)
 X FAR 52.243-2 CHANGES COST REIMBURSEMENT FAR 52.232-27 Limitation of Funds APR 1984

IMPORTANT: Contractor is not X is required to sign this document and return 1 copies to the issuing office

14 DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCP section headings, including solicitation/contract subject matter where feasible)
 1. The purpose of this modification is to add new work in accordance with the attached Statement of Work, add incremental funds in the amount of \$200,000, and update the schedule and deliverables.
 2. The task value summary is changed to read estimated cost [redacted] plus fixed fee [redacted] for a total value of \$725,917. The task funding summary is changed to read funded [redacted] plus funded fee [redacted] for a total value of \$366,556.
 3. The task completion date is changed to Dec 31, 2009.
 4. All other terms and conditions remain unchanged.

Continued ...
 Except as provided herein, all terms and conditions of the document referenced in item 5A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A NAME AND TITLE OF SIGNER (Type or print):
 Robin Amburn Grob, Contracts Manager
 15A NAME AND TITLE OF CONTRACTING OFFICER (Type or print):
 Ronald King

15B CONTRACTOR OFFEROR: Robin Amburn Grob
 15C DATE SIGNED: 3/18/09
 15B UNITED STATES OF AMERICA: Ronald King
 15C DATE SIGNED: 3/16/09

NAME OF OFFEROR OR CONTRACTOR
SCIENCE APPLICATIONS INTL CORP

ITEM NO (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
003	Subject Matter Expertise to the NESC Incrementally Funded Amount: \$200,000.00				██████████

TASK ORDER SUMMARY

1. . Perform tasks in accordance with the attached Statement of Work (Appendix 1-5) for the NASA Engineering and Safety Center, and update the schedule and deliverables.

Schedule and Deliverables

Milestone	Dates	Deliverables
Task 3a, LS-DYNA Support	[REDACTED]	Design team participation via meetings and teleconferences, with report inputs as directed Participation in live tests as requested
Task 3b, Hydrazine for CEV roll control	[REDACTED]	Meeting and teleconference participation Input into final reports and recommendations
Task 3c, CEV CPAS Reliability Assessment	[REDACTED]	Meeting and teleconference participation Input into final reports and recommendations
Task 2a, NESC Loads & Dynamics TDT	[REDACTED]	Meeting and teleconference participation Input into final reports and recommendations
Task 3d, NESC Orion SRB Representatives	[REDACTED]	Participate as members of the SRBs: Meeting and teleconference participation Input into final reports and recommendations
Task 3e, Special Advisors to the NESC	[REDACTED]	Act as trusted advisor to the NESC on a variety of NASA projects and programs: Meeting and teleconference participation Input into final reports and recommendations
Task 3f, CEV MLAS Team Support	[REDACTED]	Participate in the MLAS effort as part of a broader team tasked with developing, designing and testing an alternate MLAS system for the CEV. Meeting and teleconference participation Input into final reports and recommendations
Monthly Technical Report	Monthly during Period of Performance	Input to the regular MTR for the entire contract, issued every four weeks
Completion Date	[REDACTED]	Task Order completion memo and approval form

Mod 2

2. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-20 "Limitation of Cost" applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 is incorporated as follows:

"CONTRACT FUNDING, (NFS 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this Task Order is [REDACTED] This allotment is for this task order and covers the following estimated period of performance: 17 November 2008 through 31 Aug 2009.

(b) An additional amount of [REDACTED] is obligated under this Task Order for payment of fee.

(End of Clause)"

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPFF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254
Mod 1	[REDACTED]	[REDACTED]	\$166,556	[REDACTED]	[REDACTED]	\$166,556
Mod 2	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$366,556

NOTE: Period of performance for this task order is 17 November 2008 through 31 December 2009.

**Science Applications International Corporation
Contract NNL05AA01B**

Task Number: 59 Mod 2 Appendix 1 Subtask 2a

SUBTASK STATEMENT OF WORK

NESC Loads & Dynamics Technical Discipline Team

INTRODUCTION/BACKGROUND

The scope of this effort is to participate as a member of the NASA Engineering and Safety Center's Loads & Dynamics Technical Discipline Team (TDT), and as TDT representative, in assigned NESC Assessment teams.

DESCRIPTION OF TASKS TO BE PERFORMED

The contractor shall participate as a member of the Loads and Dynamics TDT to provide technical expert consulting and analysis in the area of launch vehicle and spacecraft structures, loads, and structural dynamics. The contractor shall include the following items in the performance of this effort.

- (1) Participate in biweekly TDT telecon meetings occurring on the 2nd and 4th Mondays of each month. Travel will be required to participate in one face-to-face meeting of the Loads and Dynamics TDT.
- (2) Participate, as directed by the NESC Technical Fellow, in formal NESC Technical Assessments or in more informal Technical Support efforts for various NASA programs. Duties include travel to and participation in Assessment or programmatic meetings.
- (3) Participate, as directed by the NESC Technical Fellow, in special analyses or consultation and advisory situations relating to various NASA programs. Duties may include travel to and participation in programmatic meetings.
- (4) Participate in writing reports and contribute draft sections, including appropriate findings and recommendations, for assigned Technical Assessments, Technical Support efforts, special analyses or consultations as directed.

PERIOD OF PERFORMANCE

The performance period of this task will be from task initiation through December 31, 2009.

ESTIMATED TIME COMMITMENT:

Time requirements will fluctuate with the contractor's participation in Technical Assessments, Technical Support efforts, consultations and advisory roles. Basic TDT participation should require approximately [REDACTED] hours.

TRAVEL:

Much of the required effort will be performed at or near the Johnson Space Center. However, as TDT representative, the contractor will be required to travel as listed in "Description of Tasks to be Performed."

**Science Applications International Corporation
Contract NNL05AA01B**

Task Number: 59 Mod 2 Appendix 2 – Subtask 3d

SUBTASK STATEMENT OF WORK

NESC Orion Standing Review Board Support

INTRODUCTION/BACKGROUND

The NESC has been asked to provide a Civil Service (CS) representative to the Orion (CEV) Standing Review Board (SRB). Previously, the NESC has filled this requirement with a contracted expert under Task 23 to the [REDACTED] contract. The NESC requires continuation of the expertise provided under Task 23, but in an advisory and support role to the official Civil Servant Board Member. The NESC Orion SRB Representative, and the contracted support, must have a detailed knowledge of the NESC, its organization, and the initiation of NESC assessments. These persons must also have a deep background in Structures, with Apollo experience preferred.

DESCRIPTION OF TASKS TO BE PERFORMED

The NESC civil servant CEV SRB Representative will represent the NESC in the meetings and deliberations of the Orion (SRB) but will be supported and backed up by the Contractor. The NESC CS Representative will be the voting member of the SRB. The Contractor will also serve as an expert advisor on Structures for the NESC Representative and the Orion SRB.

The Contractor will assess SRB issues across the board, recommend NESC involvement with the chairperson, and initiate and coordinate NESC involvement if the chair concurs. This person will also transmit any non-SRB concerns to the NESC, either directly or through the NESC CEV SRB Member, with a recommendation whether NESC should become involved. The Contractor will also assess structural issues and concerns for the SRB and document findings/observations/recommendations as needed for the SRB.

PERIOD OF PERFORMANCE

The Orion SRB and the requirement for the NESC support will continue throughout the design and development of the Orion spacecraft, which will exceed the life of this contract. The performance period of this task will be from task initiation through December 31, 2009.

ESTIMATED TIME COMMITMENT:

The NESC Orion SRB support will require approximately [REDACTED] hours per month. This will be divided between attending SRB meetings at government provided facilities, and preparation and analysis work. The SRB Chair will determine the overall pace of the Board's activity, which may lead to fluctuations in the Contractor's actual requirements.

Science Applications International Corporation
Contract NNL05AA01B

Task Number: 59 Mod 2 Appendix 2 – Page 2

SUBTASK STATEMENT OF WORK

NESC Orion Standing Review Board Support

TRAVEL:

The majority of the Orion SRB meetings will be at the Johnson Space Center or nearby in Houston, TX. Provisions should be made for one trip per year each to the Kennedy Space Center, FL and to the Michoud Manufacturing Facility, LA.

**Science Applications International Corporation
Contract NNL05AA01B**

Task Number: 59 Mod 2 Appendix 3 – Subtask 3e

SUBTASK STATEMENT OF WORK

Special Advisor to the NESC

INTRODUCTION/BACKGROUND

The scope of this effort is to participate as a trusted advisor to the NASA Engineering and Safety Center. Specifically, the contractor will represent the NESC Director in assessing technical issues in various NASA programs and advising the NESC Management Team on recommended actions.

DESCRIPTION OF TASKS TO BE PERFORMED

The contractor shall participate in on-going Constellation (Cx), International Space Station (ISS), Space Shuttle (SSP) and Special Project technical and management activities as requested by NESC Director. These activities include Technical Interchange Meetings, Program/Project Reviews, Boards, Flight Readiness and mission/meeting support, and Independent Review Boards. The contractor shall include the following items in the performance of this effort.

Provide technical inputs to the NESC on a broad variety of engineering design, development and operational tasks. Provide observations and recommendations for additional efforts where required. Conduct and recommend value added analyses and tests of space systems as warranted. Provide insight on issues based on broad technical and management experience with Apollo, Apollo-Soyuz, Shuttle and ISS Programs. Participate in brainstorming for design, development, and problem resolution as required. Recommend trade studies and design assessments as appropriate.

PERIOD OF PERFORMANCE

The performance period of this task will be from task initiation through December 31, 2009.

TIME REQUIREMENT:

Time requirements will fluctuate but can be assumed to require approximately 10 hours per month.

TRAVEL:

Much of the required effort will be performed at or near the Johnson Space Center. However, as technical issues arise, the contractor will be required to travel to support those activities detailed in the "Description of Tasks to be Performed."

**Science Applications International Corporation
Contract NNL05AA01B**

Task Number: 59 Mod 2 Appendix 4 – Subtask 3f

SUBTASK STATEMENT OF WORK

Member of Crew Exploration Vehicle (CEV) Max Launch Abort System (MLAS) Team

INTRODUCTION/BACKGROUND

The MLAS Assessment will develop, design, and test an alternate concept for the Crew Exploration Vehicle (CEV) Max Launch Abort System (MLAS). The MLAS will be theoretically capable of extracting the CEV from the Launch Vehicle at any time from crew ingress at the launch pad through staging and successful ignition of the second or upper stage of the Crew Launch Vehicle (CLV). The MLAS Assessment will conclude in March 2009 with an uncrewed pad abort test suitable for demonstrating the viability of this alternate launch abort concept. The MLAS Assessment will be independent from the Constellation Program and Orion Project in order to minimize impact on in-line program resources. Existing design and development work previously accomplished by the NASA Engineering and Safety Center (NESC) will be leveraged for this assessment, including the CEV Smart Buyer, Composite Crew Module (CCM), and the Alternate Launch Abort System (ALAS) projects. Off-the-shelf hardware will be used wherever possible.

DESCRIPTION OF TASKS TO BE PERFORMED

- The contractor shall provide independent assessment of MLAS approaches, plans and technical products.
- The contractor shall provide recommendations for additional efforts where required.
- Travel. The contractor shall perform travel as required to perform data acquisition, analysis, documentation, review, meeting and briefing support. All travel will be conducted subject to government travel regulations and 2009 approved rates for lodging and meals and incidental expenses (M&IE).

PERIOD OF PERFORMANCE: From task initiation until March 31, 2009

ESTIMATED TIME COMMITMENT:

- [REDACTED] subject matter experts – [REDACTED]
- [REDACTED] per subject matter expert

TRAVEL: Three travel instances for each subject matter expert are planned, all at NASA's Wallops Flight Facility:

- Two Independent Technical Reviews lasting about one week each
- Launch

**Science Applications International Corporation
Contract NNL05AA01B**

Task Number: 59 Mod 2 Appendix 5 - Subtask 3a

SUBTASK STATEMENT OF WORK

LS-DYNA Support

INTRODUCTION/BACKGROUND

The scope of this task is to perform simulation modeling of landing loads on NASA's Crew Exploration Vehicle (CEV) structure.

DESCRIPTION OF TASKS TO BE PERFORMED

The contractor shall perform simulation modeling of landing loads on the Crew Exploration Vehicle (CEV) structure using LS-DYNA, a general-purpose, nonlinear, dynamic, finite-element analysis code. A range of landing events will be modeled using a total systems approach to understand how the components of the CEV will interact during landing. In addition, the contractor will use the LS-DYNA results in conjunction with live crash tests to assess occupant injury using different seat and restraint designs. This work will include, but not be expressly limited to:

- Design team participation via meetings and teleconferences, with report inputs as directed
- Participation in live tests as requested
- Preparation and presentation of analyses and test results, as requested by the NASA TM.

PERIOD OF PERFORMANCE

The performance period of this task will be from task initiation through December 31, 2009.

ESTIMATED TIME COMMITMENT:

This is a continuing need and active investigation for the NESC. Originally this subtask required [REDACTED] labor hours. With the extension of the POP and further required analyses, there is an increased requirement for [REDACTED] additional labor hours.

TRAVEL:

Much of the required effort will be performed communicated by way of teleconferencing. However, to effectively complete the required analyses, the contractor may have to travel to support team meetings, testing protocol and presentation of analyses.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2 AMENDMENT/MODIFICATION NO 000003		3 EFFECTIVE DATE 03/27/2009	4 REQUISITION/PURCHASE REQ NO	5 PROJECT NO (if applicable) 1 2
6 ISSUED BY NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	CODE LARC	7 ADMINISTERED BY (if other than item 6) NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199		CODE LARC

8 NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)
SCIENCE APPLICATIONS INTL CORP
Attn: [REDACTED]
10260 CAMPUS POINT DR
SAN DIEGO CA 92121-1522

(x)	9A AMENDMENT OF SOLICITATION NO
	9B DATED (SEE ITEM 11)
X	10A MODIFICATION OF CONTRACT/ORDER NO NNL05AA01B NNL09AA33T
	10B DATED (SEE ITEM 13) 11/17/2008

CODE

FACILITY CODE

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 ACKNOWLEDGEMENT 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)

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

CHECK ONE	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).
	C THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D OTHER (Specify type of modification and authority) FAR 52.243-2 CHANGES -- COST REIMBURSEMENT FAR 52.237-22 Limitation of Funds (APR 1984)

E. IMPORTANT: Contractor is not, X is required to sign this document and return 1 copies to the issuing office

- 14 DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible)
- The purpose of this modification is to add incremental funds in the amount of \$30,000 as listed in the attached summary of changes.
 - All other terms and conditions remain unchanged.

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) Robin Amburn Grob, Contracts Manager	15B NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Ronald King
15B CONTRACTOR/OFFEROR Robin Amburn Grob (Signature of person authorized to sign)	15C DATE SIGNED 3/30/09
15B UNITED STATES OF AMERICA Ronald King (Signature of Contracting Officer)	15C DATE SIGNED 3/29/09

NSN 7540-01-152-8070
Previous edition unusable

STANDARD FORM 30 (REV. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

Mod 3

TASK ORDER SUMMARY

1. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-20 "Limitation of Cost" applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 is incorporated as follows:

"CONTRACT FUNDING, (NFS 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this Task Order is [REDACTED]. This allotment is for this task order and covers the following estimated period of performance: 17 November 2008 through 31 Aug 2009.

(b) An additional amount of [REDACTED] is obligated under this Task Order for payment of fee.

(End of Clause)"

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPFF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254
Mod 1	[REDACTED]	[REDACTED]	\$166,556	[REDACTED]	[REDACTED]	\$166,556
Mod 2	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$366,556
Mod 3	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$396,556

NOTE: Period of performance for this task order is 17 November 2008 through 31 December 2009.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE		PAGE OF PAGES	
2. AMENDMENT/MODIFICATION NO 000004		3. EFFECTIVE DATE 04/27/2009		4. REQUISITION/PURCHASE REQ. NO. 4200291718	
6. ISSUED BY NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199		7. ADMINISTERED BY (if other than item 6) NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199		5. PROJECT NO. (if applicable)	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) SCIENCE APPLICATIONS INTL CORP Attn: ██████████ 10260 CAMPUS POINT DR SAN DIEGO CA 92121-1522		9A. AMENDMENT OF SOLICITATION NO. (x)		9B. DATED (SEE ITEM 11)	
CODE		FACILITY CODE		10A. MODIFICATION OF CONTRACT/ORDER NO NNL05AA01B NNL09AA33T	
				10B. DATED (SEE ITEM 13) 11/17/2008	
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 ACKNOWLEDGEMENT 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)
4200291718 Net Increase: \$329,330.00

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

CHECK ONE	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).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF
X	D. OTHER (Specify type of modification and authority) FAR 52.243-2 CHANGES -- COST REIMBURSEMENT FAR 52.232-22 Limitation of Funds (APR 1984)

E. IMPORTANT: Contractor is not. is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
The purpose of this modification is to add incremental funds in the amount of \$329,330.00 as listed in the attached summary of changes.

2. All other terms and conditions remain unchanged.

005 Funding for NNL05AA01B 329,330.00

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) Robin Amburn Grob, Contracts Manager		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Ronald King	
15B. CONTRACTOR/OFFICER <i>Robin Amburn Grob</i> (Signature of person authorized to sign)		16B. UNITED STATES OF AMERICA <i>Ronald L King</i> (Signature of Contracting Officer)	
15C. DATE SIGNED 4/29/09		16C. DATE SIGNED 4/27/2009	

CONTRACT: NNL05AA01B

TASK ORDER: NNL09AA33T

Page 2 of 2

Mod 4

TASK ORDER SUMMARY

1. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-20 "Limitation of Cost" applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 is incorporated as follows:

"CONTRACT FUNDING, (NFS 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this Task Order is [REDACTED]. This allotment is for this task order and covers the following estimated period of performance: 17 November 2008 through 31 Nov 2009.

(b) An additional amount of [REDACTED] is obligated under this Task Order for payment of fee.

(End of Clause)"

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPFF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254
Mod 1	[REDACTED]	[REDACTED]	\$166,556	[REDACTED]	[REDACTED]	\$166,556
Mod 2	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$366,556
Mod 3	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$396,556
Mod 4	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$725,886

NOTE: Period of performance for this task order is 17 November 2008 through 31 December 2009.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	PAGE OF PAGES 1 2
2. AMENDMENT/MODIFICATION NO. 000005	3. EFFECTIVE DATE See Block 16C	4. REQUISITION/PURCHASE REQ. NO. See Schedule	5. PROJECT NO. (If applicable)
6. ISSUED BY NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	CODE LARC	7. ADMINISTERED BY (If other than item 6) NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	CODE LARC
8. NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code) SCIENCE APPLICATIONS INTL CORP Attn: ██████████ 10260 CAMPUS POINT DR SAN DIEGO CA 92121-1522		(x) 9A. AMENDMENT OF SOLICITATION NO.	9B. DATED (SEE ITEM 11)
CODE		FACILITY CODE	X 10A. MODIFICATION OF CONTRACT/ORDER NO. NNL05AA01B NNL09AA33T * 10B. DATED (SEE ITEM 13) 11/17/2008

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 ACKNOWLEDGEMENT 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)
PR: 4200304355 \$196,040 and 4200303479 \$16,902 Net Increase: \$212,942.00

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

CHECK ONE	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 data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) Mutual Agreement-Increase Level of Effort

E. IMPORTANT: Contractor is not. is required to sign this document and return 1 copies to the issuing office.

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

The purpose of this modification is to (i) increase level of effort (no SOW change); (ii) increase the task estimate; (iii) allot additional funding in the amount of \$212,942 ██████████; and (iv) extend the period of performance through 04/07/10. As a result, the following changes are hereby made:

- a. Reference the Task Cover Page, Optional Form (OF) 347, Block 15. The task completion date is hereby changed to read 04/07/10.
 - b. Reference the Task Cover Page, Optional Form (OF) 347, Block 17(e). The Task Estimated Cost Plus Fixed Fee Amount is hereby changed to read \$938,828 ██████████
 - c. Reference Contract Summary, Task Order Page 2. Delete subject page and incorporate the attached revised Contract Summary page reflecting the changes to the Task Summary, Funding
- Continued ...

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) <i>Tuwei Nguyen, Contracts Manager</i>	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) David O. Garner
15B. CONTRACTOR'S OFFER <i>Tuwei Nguyen</i> (Signature of person authorized to sign)	15C. DATE SIGNED 9-11-09
15D. UNITED STATES OF AMERICA	16B. DATE SIGNED 9/14/09 (Signature of Contracting Officer)

Mod 5

TASK ORDER SUMMARY

d. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-20 "Limitation of Cost" applies at the Task Order level.

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPPF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254
Mod 1	[REDACTED]	[REDACTED]	\$166,556	[REDACTED]	[REDACTED]	\$166,556
Mod 2	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$366,556
Mod 3	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$396,556
Mod 4	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$725,886
Mod 5	[REDACTED]	[REDACTED]	\$938,828	[REDACTED]	[REDACTED]	\$938,828

NOTE: Period of performance for this task order is 17 November 2008 through 07 Apr 2010.

e. All other terms and conditions remain the same.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT		1. CONTRACT ID CODE	PAGE OF PAGES 1 5
2. AMENDMENT/MODIFICATION NO. 000006	3. EFFECTIVE DATE See Block 16C	4. REQUISITION/PURCHASE REQ. NO. 4200324947	5. PROJECT NO. (if applicable)
6. ISSUED BY NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	CODE LARC	7. ADMINISTERED BY (if other than item 6) NASA/Langley Research Center 9B Langley Blvd., Bldg. 1195B M/S 126 Hampton VA 23681-2199	CODE LARC
8. NAME AND ADDRESS OF CONTRACTOR (No. street, county, State and ZIP Code) SCIENCE APPLICATIONS INTL CORP Attn: [REDACTED] 10260 CAMPUS POINT DR SAN DIEGO CA 92121-1522		(x) 9A. AMENDMENT OF SOLICITATION NO.	9B. DATED (SEE ITEM 11)
CODE	FACILITY CODE	x 10A. MODIFICATION OF CONTRACT/ORDER NO. NNL05AAC1B NNL09AA33T	10B. DATED (SEE ITEM 13) 11/17/2008

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 ACKNOWLEDGEMENT 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) PR: 4200324947	Net Increase:	\$305,425.00
---	---------------	--------------

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

CHECK ONE	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).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (Specify type of modification and authority) Mutual Agreement-Increase Level of Effort.

E. IMPORTANT: Contractor is not. X is required to sign this document and return _____ 1 _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)
The purpose of this modification is to (i) increase level of effort to the overall task; add subtask 3G SOW in accordance with SAIC proposed technical approach dated 12/19/09; (ii) increase the task estimate; (iii) allot additional funding in the amount of \$305,425 [REDACTED]; and (iv) extend the period of performance through 10/07/10. As a result, the following changes are hereby made:
a. Reference the Task SOW. The SOW subtask 3G is hereby incorporated into the task Order.
b. Reference the Task Cover Page, Optional Form (OF) 347, Block 15. The task completion date is hereby changed to read 10/07/10.
c. Reference the Task Cover Page, Optional Form (OF) 347, Block 17(e). The Task Estimated Cost Plus Fixed Fee Amount is hereby changed to read \$1,244,253 [REDACTED].

Continued ...

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) Tuyet Nguyen, Contracts Manager	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) David O. Garner
15B. CONTRACTOR/OFFEROR [Signature]	15C. DATE SIGNED 1-19-10
15D. UNITED STATES OF AMERICA	16C. DATE SIGNED 1/19/10
[Signature]	[Signature]

CONTINUATION SHEET

REFERENCE NO. OF DOCUMENT BEING CONTINUED
 >NNL05AA01B/NNL09AA33T/000006

PAGE OF
 2 5

NAME OF OFFEROR OR CONTRACTOR
 SCIENCE APPLICATIONS INTEL CORP

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	d. Reference Contract Summary, Task Order Page 2. Delete subject page and incorporate the attached revised Contract Summary page reflecting the changes to the Task Summary, Funding Summary, SOW paragraph 3G and Period of Performance.				

TASK ORDER SUMMARY

e. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-22 "Limitation of Funds" applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 is incorporated as follows:

"CONTRACT FUNDING, (NFS 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this Task Order is [REDACTED]. This allotment is for this task order and covers the following estimated period of performance: **17 November 2008 through 07 Oct 2010.**

(b) An additional amount of [REDACTED] is obligated under this Task Order for payment of fee.

f. All other terms and conditions remain unchanged.

SUMMARY OF TASK ORDER VALUE / FUNDING

TASK ORDER DOCUMENT	TASK VALUE SUMMARY			TASK FUNDING SUMMARY		
	ESTIMATED COST	FIXED FEE	TOTAL CPFF	FUNDED COST	FUNDED FEE	TOTAL FUNDED
BASE	[REDACTED]	[REDACTED]	\$127,254	[REDACTED]	[REDACTED]	\$127,254
Mod 1	[REDACTED]	[REDACTED]	\$166,556	[REDACTED]	[REDACTED]	\$166,556
Mod 2	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$366,556
Mod 3	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$396,556
Mod 4	[REDACTED]	[REDACTED]	\$725,917	[REDACTED]	[REDACTED]	\$725,886
Mod 5	[REDACTED]	[REDACTED]	\$938,828	[REDACTED]	[REDACTED]	\$938,828
Mod 6	[REDACTED]	[REDACTED]	\$1,244,253	[REDACTED]	[REDACTED]	\$1,244,253

NOTE: Period of performance for this task order is 17 November 2008 through 07 Oct 2010.

g. All other terms and conditions remain the same.

SUBTASK 3G STATEMENT OF WORK**Crew Module Water Landing Modeling Technical Assessment****INTRODUCTION/BACKGROUND**

This NESC assessment of Crew Module Water Landing Modeling is the result of the recent "Use of Hydrazine for Orion Landing Roll Control" assessment, which was established to review safety issues associated with landing the Orion vehicle with hydrazine remaining in its fuel tanks. This original concern was prompted by safety concerns over the Constellation Program (CxP) Crew Module's similar baseline design to the Apollo Command Module, which sustained significant heat-shield leading edge and propulsion system damage during land landing tests.

During the review of the then-current Orion design, LS-DYNA simulation results were presented that showed the torus-mounted hydrazine tanks would not be breached during water or contingency land landings. However, this result was predicated on the use of active roll control, accounting for non-linear structural deformation and the accuracy of the simulation tool itself. LS-DYNA is a state of the art finite element analysis tool that was specifically developed to accommodate non-linear phenomena. The NESC Assessment Team surveyed readily available LS-DYNA literature on the use of the tool to model water impacts, and assesses that some of the techniques used are not deterministic but rely on manipulation by the analyst. Experimental data is required to anchor LS-DYNA analyses of water impacts to mitigate the risk of the sort of impact damage seen during Apollo drop tests.

The NESC Assessment Team has identified an available test article to accelerate this verification: the MLAS CM simulator. The test article will be instrumented in two phases, and tested via crane drops into water. Water-impact test results and LS-DYNA predictions will be compared and assessed. Phase I will compare tested versus predicted CM rigid body accelerations, and Phase II will evaluate predicted local time dependent pressure distributions.

DESCRIPTION OF TASKS TO BE PERFORMED

Conduct evaluations by providing subject matter experts for the Crew Module Water Landing Modeling Technical Assessment team, the contractor shall participate in the following tasks:

- Perform Phase I and Phase II parts of the MLAS drop test design and execution
- Pre-test LS-DYNA analysis, and post-test LS-DYNA correlation.
- Post-test analysis and evaluation.

The Contractor shall provide [REDACTED] and include, but not be limited to:

- Review and comment, as necessary on the assessment team objectives and associated planning, including the specific drop test plans.
- Identify improvements to the test plan to improve its effectiveness.
- Attend and participate in team meetings both faced-to-face and teleconferences to assess and discuss relevant topics.
- Review documentation and perform other relevant analysis activity in a timely manner, and provide the team with assessment results.
- Provide draft written sections of technical reports, to include findings, observations and recommendations, as requested by the team lead. Report format to be provided by the team lead.
- Participate via telecon in outbriefs of assessment findings, observations and recommendations, to the NESC Review Board.
- Participate via telecon in outbriefs of assessed findings, observations and recommendations, to significant stakeholders, primarily those of the Constellation Program.

PERIOD OF PERFORMANCE

The performance period of this task will be from task initiation through July 31, 2010.