

COMS 9/19/05

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 9 PAGES

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

1. DATE OF ORDER September 15, 2005		2. CONTRACT NO. (if any) NNL05AA01B		6. SHIP TO:		
3. ORDER NO. Task Order NNL05AD32T		4. REQUISITION/REFERENCE NO. See Block 9		a. NAME OF CONSIGNEE NASA Langley Research Center		
5. ISSUING OFFICE (Address correspondence to) SEE BLOCK 6 (ATTN: Darla Clifton, 757-864-5717) (FAX: 757-864-7709)				b. STREET ADDRESS 9A Langley Boulevard		
7. TO:				c. CITY Hampton	d. STATE VA	e. ZIP CODE 23681-2199
a. NAME OF CONTRACTOR ATTN: [REDACTED]				8. TYPE OF ORDER		
b. COMPANY NAME Science Applications International Corporation				<input type="checkbox"/> a. PURCHASE		
c. STREET ADDRESS 10260 Campus Point Drive				REFERENCE YOUR: _____ Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.		
d. CITY San Diego		e. STATE CA	f. ZIP CODE 92121	<input checked="" type="checkbox"/> b. DELIVERY -- Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.		
9. ACCOUNTING AND APPROPRIATION DATA PR 4200130698 \$120,000.00 (COMPLETE)				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"/> d. WOMEN-OWNED <input checked="" type="checkbox"/> b. OTHER THAN SMALL <input type="checkbox"/> e. HUBZone <input type="checkbox"/> c. DISADVANTAGED <input type="checkbox"/> f. EMERGING SMALL BUSINESS <input type="checkbox"/> g. SERVICE DISABLED VETERAN-OWNED						
13. PLACE OF		14. GOVERNMENT B/L NO.		15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)		16. DISCOUNT TERMS
a. INSPECTION NASA LaRC	b. ACCEPTANCE NASA LaRC	N/A		September 29, 2006		NET 30

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)
0001	Task Order entitled "James Webb Space Telescope (JWST) Independent Review Team (IRT)" in accordance with the attached Task Order Statement of Work and the Contractor's proposal dated 9/13/2005. *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 NFS 1852.232-81 on Page 8.	1	JOB	Estimated Cost Fixed Fee *Total Cost-Plus-Fixed Fee	NTE [REDACTED] NTE \$266,737	

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT		19. GROSS SHIPPING WEIGHT		20. INVOICE NO.		17(h) TOT. (Cont. pages)
	21. MAIL INVOICE TO:						
	a. NAME ***SEE PARAGRAPH G.2 OF THE BASIC CONTRACT***						17(i) GRAND TOTAL
	b. STREET ADDRESS (or P.O. Box)						
c. CITY		d. STATE	e. ZIP CODE				

22. UNITED STATES OF AMERICA BY (Signature) Darla J Clifton	23. NAME (Typed) DARLA J. CLIFTON
TITLE: CONTRACTING/ORDERING OFFICER	

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

1. **Task Order Title:** James Webb Space Telescope (JWST) Independent Review Team (IRT)
2. **Reference:** This requirement is pursuant to contract NNL05AA01B, between NASA Langley Research Center and Science Applications International Corporation. Refer to Paragraph 4.0, *Assessments*, of the basic contract Statement of Work.
3. **Purpose, Objective, and Background of Work to be Performed:**
 - 3.1 The purpose of this task is to provide the Science Mission Directorate (SMD) Independent Review Team support for the James Webb Space Telescope (JWST). The JWST Program is managed by the Universe Division of SMD at NASA Headquarters. JWST is a single-project program focused on achieving scientific objectives organized into four areas:
 - 3.1.1 First Light (after the Big Bang)
 - 3.1.2 Assembly of Galaxies
 - 3.1.3 Birth of Stars and Protoplanetary Systems
 - 3.1.4 Planetary Systems and the Origins of Life.
 - 3.2 In order for scientists to achieve their objectives, the JWST observatory will be a large, cold infrared space telescope. The following highlight some of its main features and capabilities:
 - 3.2.1 >6 meter aperture (for sensitivity and angular resolution)
 - 3.2.2 Deployable, lightweight optics (to allow launch on an affordable, contemporary expendable launch vehicle)
 - 3.2.3 Large sunshield, orbit around the Sun-Earth L2 point and <50K temperature telescope and instrument compartment (to enable low thermal background for sensitivity)
 - 3.2.4 0.7 to 10 micron (0.6 to 28 micron goal) spectral coverage (to observe distant, highly-redshifted objects as well as nearby objects that are cold or enshrouded in dust)
 - 3.2.5 Three scientific instruments: NIRCam (near-infrared camera), NIRSpec (near-infrared spectrograph) and MIRI (mid-infrared instrument for imaging and spectroscopy)

- 3.2.6 Minimum 5-year design life (to allow adequate time for both guaranteed time and general observer programs and enable sufficient breadth and depth of observations to ensure mission success).
- 3.2.7 The JWST program is an international collaboration of NASA, the European Space Agency (ESA), individual European States and the Canadian Space Agency (CSA). Launch is scheduled for no earlier than 2011, and full science operations are to follow after 6 months of orbital insertion and on-orbit commissioning.
- 3.2.8 NASA Headquarters has formed an IRT to provide an unbiased, independent analysis capability to review the formulation and implementation of the JWST Program. The IRT is responsible for independent review of the analysis, definition, design, development, operations and termination plans for the JWST. During the formulation and implementation phases of JWST, the IRT will provide an independent assessment of the probability of meeting program technical objectives on schedule and within cost. The IRT will also assess the mission risks and measures available to mitigate those risks. Details about the IRT's responsibilities are documented in the "Terms of Reference (TOR), IRT for the JWST".
- 3.3 The NASA Independent Program Analysis Office (IPAO) finances IRT participation at mandatory independent reviews, and thus has not planned to fund IRT participation until the mission-level Preliminary Design Review (PDR) and Non-Advocate Review (NAR). However, targeted independent reviewer participation in lower-level reviews not requiring independent review is prudent in order to keep the reviewers current and insightful during the time in between the mandatory independent reviews and throughout program development. Therefore, the purpose of this task is to provide IRT support during the JWST preliminary design phase (late Formulation, or Phase B) up and until the mission-level PDR and NAR.
4. **Description of the Work to be Performed:** The Contractor shall perform the following task requirements. (The tentative schedule for each activity is shown in Section 7, Period of Performance/Schedule. The schedule may change based on direction of the JWST Program Executive.)
- 4.1 The contractor (reviewers) shall perform assessments and analyses based on material provided before and during attendance at each of the following reviews:
- 4.1.1 Wave Front Sensing and Control Software (WFS&C) PDR
 - 4.1.2 Integrated Science Instrument Module Software (ISIM S/W) PDR
 - 4.1.3 Preliminary Mirror Assembly (Pre. Mirror Assy.) PDR
 - 4.1.4 Aft Optics (Aft Optics) PDR
 - 4.1.5 Optical Telescope Element (OTE PDR)

- 4.1.6 Near Infrared Spectrometer (NIRSpec PDR)
- 4.1.7 Integrated Science Instrument Module (ISIM) Structure Critical Design Review (CDR)
- 4.1.8 Integrated Science Module (ISIM) PDR
- 4.1.9 Near Infrared Camera (NIRCam) CDR
- 4.2 The contractor (reviewers) shall document and deliver their findings, assessments, analyses and copies of any requests for action (RFA's) they submit.
- 4.3 The contractor shall perform a cost analysis of all JWST elements.
- 4.4 The contractor (JWST IRT Executive Secretary) shall provide copies of all deliverables to the IRT Chair, IRT Co-Chair/IPAO lead for JWST, the JWST Program Executive, the JWST Program Scientist, the SAIC Task Lead, and the NASA Task Monitor.
- 4.5 The contractor (JWST IRT Technical Support Chair with the assistance of the Executive Secretary) shall:
 - 4.5.1 Develop documentation and presentations as necessary
 - 4.5.2 Maintain a current schedule of review meetings and keep IRT members informed of any schedule changes
 - 4.5.3 Maintain a database of open and closed actions
 - 4.5.4 Archive reports electronically and in hardcopy format
- 5. **Deliverables:**
 - 5.1 Deliverables are reports of the review meetings listed in Section 8, Period of Performance/Schedule.
- 6. **Government Furnished Items:** None.
 - 6.1 **Other Information Needed for Task Performance:** Descriptions of each type of review and review assessment criteria are as follows:
 - 6.1.1 Preliminary Design Reviews (PDR's):
 - 6.1.1.1 Purpose: Demonstrate that the preliminary design of the subject configuration item meets all requirements with acceptable risk. Show that the correct design option has been selected, interfaces identified, and verification methods have been satisfactorily described. Establish the basis for proceeding with detailed design.
 - 6.1.1.2 Objectives:

- 6.1.1.2.1 Show that the proposed design is expected to meet functional and performance requirements
- 6.1.1.2.2 Show sufficient maturity in the proposed design approach to proceed to final design
- 6.1.1.2.3 Show that the design is verifiable and that the risks have been identified, characterized, and mitigated where appropriate.

6.1.1.3 Success Criteria:

- 6.1.1.3.1 Can the proposed preliminary design be expected to meet all the requirements within the planned cost and schedule?
- 6.1.1.3.2 Have all external interfaces been identified?
- 6.1.1.3.3 Have all the higher-level requirements been allocated down to the configuration item?
- 6.1.1.3.4 Are all the configuration item "design-to" specifications complete and ready for formal approval and release?
- 6.1.1.3.5 Has an acceptable operations concept been developed?
- 6.1.1.3.6 Does the proposed design satisfy requirements critical to human safety and mission success?
- 6.1.1.3.7 Do the human factors consideration of the proposed design support the intended end users' ability to operate the system and perform the mission effectively?
- 6.1.1.3.8 Have the production, verification, operations and other specialty engineering organizations reviewed the design?
- 6.1.1.3.9 Is the proposed design producible? Have long-lead items been considered?
- 6.1.1.3.10 Do the specialty engineering program plans and design specifications provide sufficient guidance, constraints, and system requirements for the design engineers to execute the design?
- 6.1.1.3.11 Is the reliability analysis based on a sound methodology and does it allow for realistic logistics planning and lifecycle cost analysis?
- 6.1.1.3.12 Are sufficient project reserves and schedule slack available to proceed further?

6.1.2 Critical Design Reviews (CDR's):

6.1.2.1 Purpose: Disclose the complete configuration item design in full detail, ascertain that technical problems and design anomalies have been resolved, and ensure that the design maturity justifies initiation of fabrication/manufacturing, integration and verification of mission hardware and software. Establish a basis for approving a "build-to" baseline and plans for production and verification.

6.1.2.2 Objectives:

6.1.2.2.1 Ensure that the "build-to" baseline contains detailed hardware and software specifications that can meet functional and performance requirements

6.1.2.2.2 Ensure that the design has been satisfactorily audited by production, verification, operations and other specialty engineering organizations

6.1.2.2.3 Ensure that the production processes and controls are sufficient to proceed to the fabrication stage

6.1.2.2.4 Establish that planned quality assurance (QA) activities will establish perceptive verification and screening processes for producing a quality product

6.1.2.2.5 Verify that the final design fulfills the specifications established at PDR.

6.1.2.3 Success Criteria:

6.1.2.3.1 Can the proposed final design be expected to meet all the requirements within the planned cost and schedule?

6.1.2.3.2 Is the design complete? Are drawings ready to begin production? Is software production definition sufficiently mature to start/continue coding?

6.1.2.3.3 Is the "build-to" baseline sufficiently traceable to assure that no orphan requirements exist?

6.1.2.3.4 Do the design qualification results from software prototyping and engineering item testing, simulation and analysis support the conclusion that the system will meet requirements?

6.1.2.3.5 Are all internal interfaces completely defined and compatible? Are external interfaces current?

- 6.1.2.3.6 Are integrated safety analyses complete? Do they show that identified hazards have been controlled, or have those remaining risks that cannot be controlled been waived by the appropriate authority?
- 6.1.2.3.7 Are production plans in place and reasonable?
- 6.1.2.3.8 Are there adequate quality checks in the production process?
- 6.1.2.3.9 Are the logistics support analyses adequate to identify integrated logistics support resource requirements?
- 6.1.2.3.10 Are comprehensive system integration and verification plans complete?

7. Period of Performance/Schedule:

Deliverable Number	SOW Paragraph	Milestones	Dates
1	*	Start Date	[REDACTED]
2	4.1.1 & 6.1.1	WFS&C S/W PDR	[REDACTED]
3	4.1.2 & 6.1.1	ISIM S/W PDR	[REDACTED]
4	4.1.3 & 6.1.1	Pre. Mirror Assy. PDR	[REDACTED]
5	4.1.4 & 6.1.1	Aft Optics PDR	[REDACTED]
6	4.1.5 & 6.1.1	OTE PDR	[REDACTED]
7	4.1.6 & 6.1.1	NIRSpec PDR	[REDACTED]
8	4.1.7 & 6.1.2	ISIM Structure CDR	[REDACTED]
9	4.1.8 & 6.1.1	ISIM PDR	[REDACTED]
10	4.1.9 & 6.1.2	NIRCam CDR	[REDACTED]
11	*	Completion Date	[REDACTED]

Changes to interim delivery dates shall be coordinated with and approved by the Task Monitor. Changes to the completion date must be approved by the Contracting Officer.

8. NASA Task Monitor

NASA TM: R. Brad Perry
 Organization: Science Support Office (Mail Stop 160)
 Phone Number: (757)-864-8257 / Fax Number: (757) 864-8894
 E-Mail Address: raleigh.b.perry@nasa.gov

ADDITIONAL CONTRACT CLAUSE

In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-22 applies at the Task Order level. 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 NNL05AD32T and covers the following estimated period of performance: October 14, 2005.

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

(End of Clause)"

NOTE: Contract Summary attached.

CONTRACT SUMMARY

TASK #	CONTRACT ACTION	AWARD DATE	TASK SUMMARY			FUNDING SUMMARY BY TASK OBL (+)/DEOB (-)			**TASK ORDER FUNDED THROUGH DATE	TASK ORDER PERFORMANCE PERIOD END DATE
			ESTIMATED COST	FIXED FEE	TOTAL CPFF	*ESTIMATED COST	FIXED FEE	TOTAL CPFF		
	BASIC CONTRACT	04/08/2005							N/A	04/07/2010
	TASK ORDERS AND TASK MODIFICATIONS									
1	NNL05AB40T	04/21/2005			\$292,148			\$292,148	06/30/2006	06/30/2006
2	NNL05AC14T	06/02/2005			\$464,157			\$191,638	08/05/2005	12/31/2006
3	NNL05AC32T, Mod 1	06/27/2005			\$217,609			\$106,672	09/15/2005	03/24/2006
4	NNL05AC33T	06/26/2005			\$556,462			\$50,000	07/11/2005	07/31/2006
5	NNL05AC37T	08/01/2005			\$488,807			\$100,000	11/05/2005	07/31/2006
6	NNL05AC38T	08/01/2005			\$926,929			\$49,200	09/09/2005	11/02/2006
8	NNL05AC64T, Mod 1	08/01/2005			\$17,741			\$17,741	10/31/2005	10/31/2005
9	NNL05AC65T	08/05/2005			\$469,009			\$300,000	04/30/2006	10/30/2006
10	NNL05AB41T	08/12/2005			\$421,603			\$200,000	02/28/2006	07/31/2006
11	NNL05AB42T	08/25/2005			\$1,318,359			\$317,085	12/31/2005	04/30/2006
12	NNL05AB43T	08/17/2005			\$576,296			\$58,000	09/30/2005	07/31/2006
13	NNL05AD07T, Mod 1	09/01/2005			\$124,330			\$100,000	07/31/2006	09/30/2006
14	NNL05AD08T	09/01/2005			\$607,162			\$100,000	10/15/2005	08/30/2006
16	NNL05AD32T	09/15/2005			\$266,737			\$120,000	10/14/2005	09/29/2006
		TOTAL			\$6,747,349			\$2,002,484		

* Represents the estimated cost subject to FAR 52.232-22 entitled "Limitation of Funds" and NFS 1852.232-81 "Contract Funding"

** Represents the period of performance it is estimated the allotted funds will cover

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE PAGE OF PAGE(S)
 1 2

2. AMENDMENT/MODIFICATION NO. 1
 3. EFFECTIVE DATE See Block 16c below.
 4. REQUISITION/PURCHASE REQ. NO. See Block 12 below.
 5. PROJECT NO. (If applicable)

6. ISSUED BY
**National Aeronautics and Space Administration
 Langley Research Center
 Hampton, VA 23681-2199**

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

8. NAME AND ADDRESS OF CONTRACTOR (No. Street, county, State and ZIP Code)
**SCIENCE APPLICATIONS INTERNATIONAL CORPORATION
 10260 CAMPUS POINT DRIVE
 SAN DIEGO, CA 92121
 ATTN: [REDACTED]**

9A. AMENDMENT OF SOLICITATION NO.
 9B. DATED (SEE ITEM 11)
 10A. MODIFICATION OF CONTRACT/ORDER NO.
X NNL05AA01B / NNL05AD32T
 10B. DATED (SEE ITEM 11)
September 15, 2005

CODE 0T5L1 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 one (1) copy 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 DATA 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 data specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
 PR: 4200130698 \$-30,000 (DEOBLIGATION)

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

(a) 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 52.232-22, LIMITATION OF FUNDS (APRIL 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 deobligate funding in the amount of \$30,000. Accordingly, the task order terms and conditions are revised as follows:

(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) SARAH CAMPBELL, SENIOR CONTRACTS MANAGER	15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) ROBERT J. RICE, CONTRACTING OFFICER
15B. CONTRACTOR/OFFICER <i>Sarah Campbell</i> (Signature of person authorized to sign)	15B. UNITED STATES OF AMERICA BY <i>Robert J. Rice</i> (Signature of Contracting Officer)
15C. DATE SIGNED 3/10/2006	15C. DATE SIGNED 3/10/06

1. In accordance with Paragraph B.4, of the Basic Contract (NNL05AA01B), FAR 52.232-22 applies at the Task Order level. In accordance with this clause, NFS 1852.232-81 as previously incorporated in NNL05AD32T is revised to read:

"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 **NNL05AD32T** and covers the following estimated period of performance: **September 15, 2005 through April 30, 2006.**

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

(End of Clause)"

2. 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	ESTIMATED COST	FIXED FEE	TOTAL CPFF
BASIC	[REDACTED]	[REDACTED]	\$266,737	[REDACTED]	[REDACTED]	\$120,000
MOD 1	[REDACTED]	[REDACTED]	\$266,737	[REDACTED]	[REDACTED]	\$90,000