AWARD/CONTRACT	1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)	RATING	PAGE 1 OF PAGES 36
2. CONTRACT (Proc. Inst. Ident.) NO. HR0011-09-C-0053	3. EFFECTIVE DATE 24 Mar 2009	4. REQUISITION/PURCHASE REQUEST/PROJECT NO. Y144/00	

5. ISSUED BY CODE HR0011
DARPA
CMO
ATTN: CHRISTOPHER GLISTA
3701 N. FAIRFAX DR.
ARLINGTON VA 22203

6. ADMINISTERED BY (If other than Item 5) CODE S1504A
DCMA AIRCRAFT PROPULSION OPERATIONS
ROLLS ROYCE CORPORATION
2001 SOUTH TIBBS AVENUE
INDIANAPOLIS IN 46241-4812

7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, state and zip code)
ROLLS ROYCE NORTH AMERICAN TECHNOLOGIES,
2001-2059 S TIBBS AVE
INDIANAPOLIS IN 46241-4812

CODE 020N0 FACILITY CODE

8. DELIVERY
[ ] FOB ORIGIN [X] OTHER (See below)

9. DISCOUNT FOR PROMPT PAYMENT
n/a

10. SUBMIT INVOICES 1
(4 copies unless otherwise specified)
TO THE ADDRESS SHOWN IN:

ITEM
Section G

11. SHIP TO/MARK FOR CODE FA8650
AFRL/RZTA
MAJOR DAVID HOPPER
BLDG 18 ROOM D027
1950 FIFTH ST
WPAFB OH 45433

12. PAYMENT WILL BE MADE BY CODE HQ0337
DFAS COLUMBUS CENTER
NORTH ENTITLEMENT OPERATIONS
P.O. BOX 182266
COLUMBUS OH 43218-2266

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION:
[ ] 10 U.S.C. 2304(c)( ) [ ] 41 U.S.C. 253(c)( )

14. ACCOUNTING AND APPROPRIATION DATA
See Schedule

15A. ITEM NO.	15B. SUPPLIES/ SERVICES	15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT
	SEE SCHEDULE				

15G. TOTAL AMOUNT OF CONTRACT $3,587,211.00

16. TABLE OF CONTENTS

(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
		PART I - THE SCHEDULE				**PART II - CONTRACT CLAUSES**	
X	A	SOLICITATION/ CONTRACT FORM			I	CONTRACT CLAUSES	
	B	SUPPLIES OR SERVICES AND PRICES/ COSTS				**PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS**	
	C	DESCRIPTION/ SPECS./ WORK STATEMENT			J	LIST OF ATTACHMENTS	
	D	PACKAGING AND MARKING				**PART IV - REPRESENTATIONS AND INSTRUCTIONS**	
	E	INSPECTION AND ACCEPTANCE			K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
	F	DELIVERIES OR PERFORMANCE					
	G	CONTRACT ADMINISTRATION DATA			L	INSTRS., CONDS., AND NOTICES TO OFFERORS	
	H	SPECIAL CONTRACT REQUIREMENTS			M	EVALUATION FACTORS FOR AWARD	

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. [X] CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return 1 copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

18. [ ] AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

19A. NAME AND TITLE OF SIGNER (Type or print)

20A. NAME OF CONTRACTING OFFICER
CHRIS GLISTA /
TEL: 571-218-4405 EMAIL: christopher.glista@darpa.mil

19B. NAME OF CONTRACTOR
BY _____
(Signature of person authorized to sign)

19C. DATE SIGNED

20B. UNITED STATES OF AMERICA
(b)(6)
BY _____
(Signature of Contracting Officer)

20C. DATE SIGNED
27-Mar-2009

Section B - Supplies or Services and Prices

CONTRACT LINE ITEM (CLIN) NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0001	VULCAN - Phase I CPFF The Contractor shall perform the Vulcan Program, Phase I in accordance with Attachment No. 1 - Statement of Work entitled, "Vulcan - Phase I", and Section C-1 of the Contract. Technical data, reports, and other deliverables are not separately priced and shall be provided to the Government in accordance with Sections C-2, F-2, F-3, and Attachment No. 1 of the Contract. FOB: Destination	(b)(4)	(b)(4)	$3,587,211.00
000101	Funding for CLIN 0001 CPFF FOB: Destination AO No. Y144/00			
	ACRN AA:			$3,587,211.00

Section C - Descriptions and Specifications

CLAUSES INCORPORATED BY FULL TEXT

C-1 Scope of Work

(a) The Contractor shall furnish the necessary personnel, materials, facilities, and other services as may be required to perform Contract Line Item (CLIN) 0001, in accordance with the Statement of Work entitled "Vulcan – Phase I". A copy of the Statement of Work is incorporated into the Contract as Attachment 1.

(b) Phase II: Prior to the expiration of the term of the Basic Contract, the Government shall evaluate both the research results of Phase I against a set of Government Go/No-Go Criteria for Phase II as stipulated in Attachment No. 4 and the Contractor's Phase II proposal described in Section C-2(a)(3), and determine whether research work shall continue into the next phase.

(end of clause)

C-2 Reports and Other Deliverables

(a) The Contractor shall submit the following reports and other deliverables in accordance with the delivery schedule set forth in Section F. Reports and other deliverables shall be submitted in writing, as defined in FAR 2.101, or as specified below:

(1) R&D STATUS REPORT
This brief narrative, not to exceed five pages in length, shall contain the following:

(i) For first report only; the date work actually started.
(ii) Description of progress during the reporting period, supported by reasons for any change in approach reported previously
(iii) Planned activities and milestones for the next reporting period.
(iv) Description of any major items of experimental or special equipment purchased or constructed during the reporting period.
(v) Notification of any changes in key personnel associated with the contract during the reporting period.
(vi) Summary of substantive information derived from noteworthy trips, meetings, and special conferences held in connection with the contract during the reporting period.
(vii) Summary of all problems or areas of concern.
(viii) Related accomplishments since last report.
(ix) Fiscal status, to include reporting of summary level financial data in the following format: (next page)

R&D STATUS REPORT
PROGRAM FINANCIAL STATUS

Work Breakdown		Cumulative to Date			At Completion	
Structure or Task Element	Planned Expend	Actual Expend	% Budget Compl	At Compl	Latest Revised Estimate	Remarks
Subtotal:						
Management Reserve: Or Unallocated Resources:						
TOTAL:						

Note: Budget at completion changes only with the amount of any scope changes. (Not affected by underrun or overrun)

Based on currently authorized work:

Is current funding sufficient for the current fiscal year (FY)? (Explain in narrative if "NO")

YES NO

What is the next FY funding requirement at current anticipated levels?

$ _____

Have you included in the report narrative any explanation of the above data and are they cross-referenced?

YES NO

(2) FINAL TECHNICAL REPORT FOR PHASE I
This report shall document the results of the complete effort and should be delivered at the completion of the contract. If the Government chooses to exercise the options under this contract, the due date for the final report is extended accordingly. Title pages shall include a disclaimer worded substantially as follows:

> "The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

The Final Technical Report summary shall include:

Task Objectives
Technical Problems
General Methodology (i.e., literature review, laboratory experiments, surveys, etc.)
Technical Results
Important Findings and Conclusions
Significant Hardware Development
Special Comments
Implications for Further Research
Standard Form 298, August 1998

(3) PHASE II PROPOSAL
The Contractor shall prepare and deliver a full cost and technical proposal for Phase II seven (7) months after the award of the Contract for the Government's consideration. The Phase II proposal shall consist of the Phase I final review deliverables, an updated Phase II Statement of Work, integrated Master Schedule (IMS) and Cost Estimate to Work Breakdown Structure (WBS) level 4 detail. Additionally, an updated management and staffing plan shall be provided. Each test and demonstration must be a uniquely described and priced WBS element. The Phase II proposal shall use the same WBS established with the Phase I proposal and this WBS should be used to link the IMS and cost. The Contractor shall also include an update to the Phase III program plan to WBS level 3 and the Phase IV program plan to WBS level 2.

(4) ADDITIONAL MISCELLANEOUS DATA DELIVERABLES

(a) The Contractor shall also deliver those items listed in the Contract Attachment No. 1 – Statement of Work, as applicable. The Contractor shall adhere to the schedule, as applicable, contained in the Statement of Work. Presentation materials (hard and soft copy) for all briefings given to the Government shall be provided in the Contractor's format.

(b) Reports delivered by the Contractor in the performance of the contract shall be considered "Technical Data" as defined in Section I contract clauses entitled "Rights in Technical Data – Noncommercial Items" and "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation."

(c) Bulky Reports shall be mailed by other than first-class mail unless the urgency of submission requires use of first-class mail. In this situation, one copy shall be mailed first-class and the remaining copies forwarded by less than first-class.

(d) All papers and articles published as a result of DARPA sponsored research shall include a statement reflecting the sponsorship. In addition, a bibliography of the titles and authors of all such papers are to be included in the Final Technical Report

(1) The cover or title page of each of the above reports or publications prepared, will have the following citation:

Sponsored by
Defense Advanced Research Projects Agency
Tactical Technology Office (TTO)
Program: VULCAN – Phase I
ARPA Order No. Y144/00
Issued by DARPA/CMO under Contract No. HR0011-09-C-0053

(2) The title page shall include a disclaimer worded substantially as follows:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

(3) All technical reports must (i) be prepared in accordance with American National Standards Institute (ANSI) Standard Z39.18; (ii) include a Standard Form 298, August 1998; and (iii) be marked with an appropriate Distribution Statement.

(4) Distribution Statement B applies. "Distribution authorized to U.S. Government agencies only due to the inclusion of proprietary information and to prevent premature dissemination of potentially critical technological information. Other requests for this document shall be referred to the DARPA Technical Information Office via email at tio@darpa.mil.

(end of clause)

Section D - Packaging and Marking

CLAUSES INCORPORATED BY FULL TEXT

D-1 Packaging and Marking

(a) All items shall be preserved, packaged, packed and marked in accordance with best commercial practices to meet the packing requirements of the carrier, and to ensure safe delivery at destination.

(end of clause)

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

(a) Supplies/services will be inspected/accepted at destination by the Contracting Officer's Representative (COR) identified at Section G herein.

(b) Use of the DD Form 250 – Material Inspection and Receiving Report is required for the Phase I Final Technical Report only.

CLAUSES INCORPORATED BY REFERENCE

52.246-9	Inspection Of Research And Development (Short Form)	APR 1984
252.246-7000	Material Inspection And Receiving Report	MAR 2008

Section F - Deliveries or Performance

CLAUSES INCORPORATED BY REFERENCE

52.242-15 Alt I	Stop-Work Order (Aug 1989) - Alternate I	APR 1984
52.247-34	F.O.B. Destination	NOV 1991

CLAUSES INCORPORATED BY FULL TEXT

F-1 Term of Contract

(a) The term of the contract commences on March 24, 2009 and continues through November 24, 2009, eight (8) months thereafter.

(b) An Authorization to Incur Pre-Award Costs was issued to the Contractor on March 5, 2009 (see Attachment No. 6 – Advance Agreement to Incur Pre-Award Costs under Contract HR0011-09-C-0053).

(end of clause)

F-2 Reports and Other Deliverables

(a) Delivery of all reports and other deliverables shall be made to the addressee specified in F-3 entitled "Report Distribution" in accordance with the following:

CLIN No.	Description	Due Date (on or before)
0001	R&D Status and Financial Report *	Monthly, no later than 15 days after the end of the Contractor's monthly accounting period
0001	Final Technical Report for Phase I *	Upon Completion of Phase I
0001	Phase II Proposal *	Seven (7) months after the Contract effective date
0001	Additional Miscellaneous Data Deliverables *	See Attachment No. 1 – Statement of Work
	* NSP – Not Separately Priced	

(end of clause)

F-3 Report Distribution

(a) DARPA/Tactical Technology Office (TTO)
Attn: Dr. Thomas Bussing, Program Manager (PM)
3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: Thomas.Bussing@darpa.mil
(one copy each report and deliverable)

(b) AFRL/RZTA
Attn: Maj David Hopper, Contracting Officer's Representative (COR)
1950 Fifth St
Bldg 18, Room D027
WPAFB, OH 45433
Email: David.Hopper2@wpafb.af.mil
(one copy each report and deliverable)

(c) DARPA/Tactical Technology Office (TTO)
Attn: Assistant Director, Program Management (ADPM)
3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: adpm-tto@darpa.mil
(one copy of the R&D Status Reports and Final Technical Report)

(d) DARPA/Library
3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: library@darpa.mil
(one copy of the Final Technical Report)

(e) Defense Technical Information Center

(1) Email: TR@dtic.mil
(one electronic copy of the Final Technical Report, if unclassified)

OR

(2) Attn: DTIC-BCS
8725 John J. Kingman Road, Suite 0944
Fort Belvoir, VA 22060-0944
(two hard copies of the Final Technical Report if unclassified)

(f) DARPA/Contracts Management Office (CMO)
Attn: Chris Glista
3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: reportscg@darpa.mil
(one copy each report – electronic preferred)

Note 1: (a) through (f) – submission of unclassified materials only. Submission of classified materials shall be coordinated through DARPA SID and/or Dr. Thomas Bussing, DARPA/TTO, in accordance with the attached DD Form 254, as applicable.

Note 2: For the Final Technical Report for Phase I, the Contractor must also comply with the distribution requirements of DFARS 252.235-7011, as applicable.

(end of clause)

F-4 Notice Regarding Late Delivery

(a) In the event the Contractor anticipates difficulty in complying with the contract delivery schedule, the Contractor shall immediately notify the Contracting Officer in writing, giving pertinent details, including the date by which it expects to make delivery; PROVIDED, however, that this date shall be informational only in character and the receipt thereof shall not be construed as a waiver by the Government of any contract delivery schedule, or any rights or remedies provided by law or under this contract.

(end of clause)

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 9790400 1320 Y144 P9G10 2525 DPAC 9 5135 S12136 62702E
AMOUNT: $3,587,211.00
CIN 0000000000000000000000000000000: $3,587,211.00

CLAUSES INCORPORATED BY FULL TEXT

G-1 Procuring Office Representative

(a) The Procuring Office Representative is Chris Glista, DARPA/CMO, 3701 North Fairfax Drive, Arlington, VA 22203-1714, telephone: (571) 218-4405, e-mail: christopher.glista@darpa.mil.

(b) Notwithstanding any other provision of this contract, the Contracting Officer is the only individual authorized to redirect the effort or in any way amend or modify any of the terms of this contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statement of work, a modification must be issued in writing and signed by the Contracting Officer.

(end of clause)

G-2 Electronic Submission of Payment Requests

(a) Invoices for goods received or services rendered under this contract shall be submitted electronically through Wide Area Work Flow – Receipt and Acceptance (WAWF):

(1) Vendors that have never used WAWF shall follow the directions in the WAWF Vendor Getting Started Guide available at the following website:

http://www.dfas.mil/contractorpay/electroniccommerce/wideareaworkflow.html. This website also contains links for Vendor training and practice. Additional support can be obtained by calling WAWF Customer Service at 866-618-5988.

(2) Back up documentation (such as timesheets, monthly status reports, etc.) can be included and attached to the invoice in WAWF. Attachments should be in PDF format, but Attachments created in any Microsoft Office product may be attached. Total limit for the size of files per invoice is 5 megabytes.

(b) The following information, regarding invoice routing DoDAAC's, must be entered for completion of the invoice in WAWF:

WAWF Invoice Type:	Select Cost Voucher
Issuing Office DoDAAC	HR0011
Admin Offfice DoDAAC	S1504A
Service Approver DoDAAC	S1504A
DCAA Office DoDAAC	HAA150
Paying Office DoDAAC	HQ0337

(c) Cost Vouchers from Contractors approved by DCAA for direct billing will be directly routed to DFAS. Cost Vouchers from Contractors not approved for direct billing will be routed to DCAA for approval before the Cost Voucher is routed to DFAS. All Final Cost Voucher submissions will be routed to the Service Approver for approval. The DCAA office for this award is:

DCAA Aircraft Propulsion Operations – Rolls-Royce
2001 South Tibbs Avenue
Indianapolis, IN 46241-4812
DoDAAC: HAA150

(d) For each invoice/cost voucher submitted for payment, the contractor shall also e-mail the WAWF automated invoice notice directly to the following points of contact:

Name	E-mail	Phone	Role
Maj David Hopper	David.Hopper2@wpafb.af.mil	(937) 255-4100	Contracting Officer's Representative
Chris Glista	Christopher.Glista@darpa.mil	(571) 218-4405	Primary Contracting Officer

G-3 Delegation of Authority for Contract Administration

(a) DCMA Aircraft Propulsion Operations – Rolls Royce Corporation, 2001 South Tibbs Ave., Indianopolis, IN 46241-4812, Phone (317) 230-4249, is hereby designated as the Contracting Officer's authorized representative for administering this contract in accordance with current directives.

(end of clause)

G-4 Contracting Officer's Representative (COR)

(a) Performance of work under this contract shall be subject to the technical direction of Major David Hopper, AFRL/RZTA Bldg 18 Room D027 1950 Fifth St, WPAFB, OH 45433, telephone (937) 255-4100, e-mail: - David.Hopper2@wpafb.af.mil. Such technical direction includes those instructions to the Contractor necessary to accomplish the Statement of Work. The COR is not otherwise authorized to make any representations or

commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or to change the specifications of the contract.

(b) Technical direction shall not include any direction which:

(1) Constitutes additional work outside the scope of work;

(2) Constitutes a change as defined in Section I contract clause entitled "Changes";

(3) In any manner causes an increase or decrease in the total estimated cost or the time required for contract performance; or

(4) Changes any of the stated terms, conditions, or specifications of the contract.

(c) A copy of the Contracting Officer's Representative Appointment Letter is incorporated into the Contract as Attachment No. 2 under Section J.

(end of clause)

G-5 Payment Instructions for Multiple Accounting Classification Citations

(a) Payments under contract line items funded by multiple accounting classification citations shall be made from the earliest available fiscal year funding sources. The earliest assigned ACRN must be fully disbursed before making disbursements from a succeeding ACRN.

(end of clause)

G-6 Payment of Cost and Fee

(a) As consideration for the proper performance of work required under this contract, the Contractor shall be paid as follows:

(1) Costs, as provided for under Section I contract clause titled "Allowable Cost and Payment" not to exceed the amount set forth as "Total Estimated Cost" in Section B, and subject further to those Section I clauses entitled "Limitation of Cost" or "Limitation of Funds".

(2) A fixed fee in the amount set forth as "Fixed Fee" in Section B, in accordance with the Section I contract clause entitled "Fixed Fee". The Contractor may bill on each invoice the amount of the fixed fee bearing the same percentage to the total fixed fee as the amount of cost billed bears to the total estimated cost.

(end of clause)

Section H - Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

H-1 Type of Contract

(a) This is a Cost-Plus-Fixed-Fee (CPFF) completion contract.

(end of clause)

H-2 Public Release or Dissemination of Information

(a) There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the DARPA Technical Information Officer (DARPA/TIO). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. Papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

(b) When submitting material for written approval for open publication as described in subparagraph (a) above, the Contractor must submit a request for public release request to the DARPA TIO and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to tio@darpa.mil or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571) 218-4235. Refer to www.darpa.mil/tio for information about DARPA's public release process.

(c) All public release and dissemination of information is also subject to DFARS 252.235-7010.

(end of clause)

H-3 Key Personnel

(a) The Contractor shall notify the Contracting Officer prior to making any change in key personnel. Key personnel are defined as follows:

PERSON	ROLE	COMPANY	PERCENTAGE OF TIME DEDICATED TO VULCAN
(b)(4)			

(b) The Contractor must demonstrate that the qualifications of the prospective personnel are equal to or better than the qualifications of the personnel being replaced. Notwithstanding any of the foregoing provisions, key

personnel shall be furnished unless the Contractor has demonstrated to the satisfaction of the COR that the qualifications of the proposed substitute personnel are equal to or better than the qualifications of the personnel being replaced.

(end of clause)

H-4 Restrictions on Printing

(a) Unless otherwise authorized in writing by the Contracting Officer, reports, data, or other written material produced using funds provided by this contract and submitted hereunder shall be reproduced only by duplicating processes and shall not exceed 5,000 single page reports or a total of 25,000 pages of a multiple-page report. These restrictions do not preclude the writing, editing, preparation of manuscript or reproducible copy of related illustrative materials if required as part of this contract, or incidental printing such as forms or materials necessary to be used by the Contractor to respond to the terms of the contract.

(end of clause)

H-5 Invention Disclosures and Reports

(a) All written communications required by DFARS 52.227-7038, "PATENT RIGHTS – OWNERSHIP BY THE CONTRACTOR (LARGE BUSINESS)" (Dec 2007) shall be submitted to the Administrative Contracting Officer (ACO). All required reporting shall be accomplished using the i-Edison.gov reporting website: https://s-edison.info.nih.gov/iEdison/.

(end of clause)

H-6 Contractor Representations and Certifications

(a) The Contractor's Representations and Certifications dated January 5, 2009 and the Contractor's Online Representations and Certifications (ORCA) with validity of August 8, 2008 through August 8, 2009 are incorporated herein by reference.

(end of clause)

H-7 Insurance Schedule

(a) The Contractor shall maintain the types of insurance listed in FAR 28.307-2 (a), (b) and (c), with the minimum amounts of liability indicated therein. The types of insurance coverage listed in paragraphs (d) and (e) shall also be maintained when applicable.

(end of clause)

H-8 Travel

(a) Reimbursement for travel-related expenses shall be in accordance with the Contractor's approved travel policy. The Federal Travel Regulations, Joint Travel Regulations (JTR), and Standardized Regulations as stated

in FAR 31.205-46 will be used as a guide in determining reasonableness of per diem costs. Costs for travel shall be allowable subject to the provisions of FAR 31.205-46.

(b) In connection with direct charge to the contract of travel-related expenses, the Contractor shall hold travel to the minimum required to meet the objectives of the contract, and substantial deviations from the amount of travel agreed to during contract negotiation shall not be made without the authorization of the Contracting Officer.

When applicable, the Contractor shall notify the COR of proposed travel of an employee beyond that agreed to during negotiations.

(c) Approval of the Contracting Officer shall be obtained in advance for attendance by personnel at training courses, seminars, and other meetings not directly related to contract performance if the costs for the courses, seminars, and other meetings are charged to the contract.

(d) All foreign travel shall be authorized and approved in advance, in writing, by the Contracting Officer. Request for such travel must be submitted to the Contracting Officer at least thirty (30) days in advance of traveler's anticipated departure date, and shall include traveler's itinerary of United States Flag Air Carriers.

(end of clause)

H-9 Metric System

(a) The Defense Advanced Research Projects Agency (DARPA) will consider the use of the metric system in all of its activities consistent with operational, economical, technical and safety requirements.

(b) The metric system will be considered for use in all new designs. When it is deemed not to be in the best interest of the DoD to provide metric design, justification shall be provided.

(c) Physical and operational interfaces between metric items and U.S. customary items will be designed to assure that interchangeability and interoperability will not be affected.

(d) Existing designs dimensioned in U.S. customary units will be converted to metric units only if determined to be necessary or advantageous. Unnecessary retrofit of existing systems with new metric components will be avoided where both the new metric and existing units are interchangeable and interoperable. Normally, the system of measurement in which an item is originally designed will be retained for the life of the item.

(e) During the metric transition phase hybrid metric and U.S. customary designs will be necessary and acceptable. Material components, parts, subassemblies, and semi-fabricated material, which are of adequate or when it is otherwise specifically determined to be in the best interest of the Department of Defense. Bulk materials will be specified and accepted in metric units when it is expedient or economical to do so.

(f) Technical reports, studies, and position papers, (except those pertaining to items dimensioned in U.S. customary units) will include metric units of measurement in addition to or in lieu of U.S. customary units. With respect to existing contracts, this requirement applies only if such documentation can be obtained without an increase in contract costs.

(g) Use of the dual dimensions (i.e., both metric and U.S. customary dimensions) on drawings will be avoided unless it is determined in specific instances that such usage will be beneficial. However, the use of tables on the document to translate dimensions from one system of measurement to the other is acceptable.

(end of clause)

H-10 Consent to Subcontract

(a) Pursuant to the clause of the General Provisions entitled "Subcontracts (JUN 2007)," FAR 52.244-2(j), the Contracting Officer hereby consents to the placement of subcontracts with the following firms at the ceiling amounts specified:

NAME OF SUBCONTRACTOR	AMOUNT
(b)(4)	

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use or number of subcontractors from the level established in subparagraph (a) *.

* The Contractor may deviate from the aggregate "Total Amount" shown above by 5% ($99,473) without the prior written approval of the Contracting Officer. Any such deviation shall result in no increase to the Total Estimated Cost-Plus-Fixed-Fee shown in Section B.

(end of clause)

H-11 Small Business Subcontracting Plan and Goals

(a) The Contractor's Small Business Subcontracting Plan, dated September 22, 2008, is incorporated herein and made a part of this contract by reference.

(end of clause)

H-12 Proprietary Technical Data and Computer Software

(a) Any deliverable technical data or computer software developed or generated at private expense and considered to be proprietary by the Contractor or subcontractors shall be delivered in accordance with DFARS 252.227-7013 and 252.227-7014. A list of such data and/or software is incorporated into the Contract as Attachment No. 3 under Section J.

(end of clause)

H-13 Consultants

(a) The contractor is authorized to use the following consultants to the extent indicated:

Name	No. of Hours	Rate	Total Amount
(b)(4)	(b)(4)	(b)(4)	(b)(4)

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use of consultants from the level estimated in subparagraph (a).

(end of clause)

H-14 Export Control Clause

(a) The contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(b) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technical data or software.

(c) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(d) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

(end of clause)

H-15 Military Security Classification

(a) Military security requirements in the performance of the Contract shall be maintained in accordance with the DD Form 254, Contract Security Classification Specification, a copy of which is incorporated into the Contract as Attachment No. 5 under Section J.

(end of clause)

H-16 Pre-Contract Costs

(a) The extent of allowability of costs incurred by the Contractor prior to the effective date of the Contract shall be governed by the Advance Agreement to Incur Pre-Award Costs dated March 5, 2009, a copy of which is incorporated into the Contract as Attachment No. 6 under Section J.

(end of clause)

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	SEP 2006
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	SEP 2007
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	APR 2008
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	SEP 2006
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-10	Price Reduction for Defective Cost or Pricing Data	OCT 1997
52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-14 Alt I	Integrity of Unit Prices (Oct 1997) - Alternate I	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	OCT 2004
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	JUL 2005
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications	OCT 1997
52.216-7	Allowable Cost And Payment	DEC 2002
52.216-8	Fixed Fee	MAR 1997
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9 (Dev)	Small Business Subcontracting Plan (Deviation)	APR 2008
52.222-3	Convict Labor	JUN 2003
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	SEP 2006
52.222-39	Notification of Employee Rights Concerning Payment of Union Dues or Fees	DEC 2004
52.222-50	Combating Trafficking in Persons	AUG 2007
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1 Alt I	Authorization And Consent (Dec 2007) - Alternate I	APR 1984
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	DEC 2007

52.227-10	Filing Of Patent Applications--Classified Subject Matter	DEC 2007
52.228-7	Insurance--Liability To Third Persons	MAR 1996
52.230-3	Disclosure And Consistency Of Cost Accounting Practices	OCT 2008
52.230-6	Administration of Cost Accounting Standards	MAR 2008
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	OCT 2008
52.232-20	Limitation Of Cost	APR 1984
52.232-23 Alt I	Assignment of Claims (Jan 1986) - Alternate I	APR 1984
52.232-25	Prompt Payment	OCT 2008
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-3 Alt I	Protest After Award (Aug 1996) - Alternate I	JUN 1985
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.242-1	Notice of Intent to Disallow Costs	APR 1984
52.242-3	Penalties for Unallowable Costs	MAY 2001
52.242-4	Certification of Final Indirect Costs	JAN 1997
52.242-13	Bankruptcy	JUL 1995
52.243-2 Alt V	Changes--Cost-Reimbursement (Aug 1987) - Alternate V	APR 1984
52.244-5	Competition In Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	DEC 2008
52.245-1 (Dev)	Government Property (June 2007)	JUN 2007
52.245-9	Use And Charges	JUN 2007
52.247-63	Preference For U.S. Flag Air Carriers	JUN 2003
52.249-6	Termination (Cost Reimbursement)	MAY 2004
52.249-14	Excusable Delays	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2004
252.204-7000	Disclosure Of Information	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004 Alt A	Central Contractor Registration (52.204-7) Alternate A	SEP 2007
252.204-7009	Requirements Regarding Potential Access to Export-Controlled Items	JUL 2008
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	DEC 2006
252.211-7003	Item Identification and Valuation	AUG 2008
252.211-7007	Reporting of Government-Furnished Equipment in the DoD Item Unique Identification (IUID) Registry	NOV 2008
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	DEC 2006
252.215-7004	Excessive Pass-Through Charges	MAY 2008
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7006	Quarterly Reporting of Actual Contract Performance Outside the United States	MAY 2007
252.225-7012	Preference For Certain Domestic Commodities	MAR 2008
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	SEP 2004
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995

252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	JUN 1995
252.227-7015	Technical Data--Commercial Items	NOV 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7019	Validation of Asserted Restrictions--Computer Software	JUN 1995
252.227-7025	Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends	JUN 1995
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.227-7038	Patent Rights--Ownership by the Contractor (Large Business)	DEC 2007
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	MAR 2008
252.232-7010	Levies on Contract Payments	DEC 2006
252.235-7011	Final Scientific or Technical Report	NOV 2004
252.242-7004	Material Management And Accounting System	NOV 2005
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	JAN 2007
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

CLAUSES INCORPORATED BY FULL TEXT

52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notifications in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall--

(1) Maintain current, accurate, and complete inventory records of assets and their costs;

(2) Provide the ACO or designated representative ready access to the records upon request;

(3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and

(4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of clause)

52.216-7 ALLOWABLE COST AND PAYMENT (DEC 2002)

(a) Invoicing.

(1) The Government will make payments to the Contractor when requested as work progresses, but (except for small business concerns) not more often than once every 2 weeks, in amounts determined to be allowable by the Contracting Officer in accordance with Federal Acquisition Regulation (FAR) subpart 31.2 in effect on the date of this contract and the terms of this contract. The Contractor may submit to an authorized representative of the Contracting Officer, in such form and reasonable detail as the representative may require, an invoice or voucher supported by a statement of the claimed allowable cost for performing this contract.

(2) Contract financing payments are not subject to the interest penalty provisions of the Prompt Payment Act. Interim payments made prior to the final payment under the contract are contract financing payments, except interim payments if this contract contains Alternate I to the clause at 52.232-25.

(3) The designated payment office will make interim payments for contract financing on the 30th day after the designated billing office receives a proper payment request.

In the event that the Government requires an audit or other review of a specific payment request to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the specified due date.

(b) Reimbursing costs. (1) For the purpose of reimbursing allowable costs (except as provided in subparagraph (b)(2) of the clause, with respect to pension, deferred profit sharing, and employee stock ownership plan contributions), the term "costs" includes only--

(i) Those recorded costs that, at the time of the request for reimbursement, the Contractor has paid by cash, check, or other form of actual payment for items or services purchased directly for the contract;

(ii) When the Contractor is not delinquent in paying costs of contract performance in the ordinary course of business, costs incurred, but not necessarily paid, for--

(A) Supplies and services purchased directly for the contract and associated financing payments to subcontractors, provided payments determined due will be made--

(1) In accordance with the terms and conditions of a subcontract or invoice; and

(2) Ordinarily within 30 days of the submission of the Contractor's payment request to the Government;

(B) Materials issued from the Contractor's inventory and placed in the production process for use on the contract;

(C) Direct labor;

(D) Direct travel;

(E) Other direct in-house costs; and

(F) Properly allocable and allowable indirect costs, as shown in the records maintained by the Contractor for purposes of obtaining reimbursement under Government contracts; and

(iii) The amount of financing payments that have been paid by cash, check, or other forms of payment to subcontractors.

(2) Accrued costs of Contractor contributions under employee pension plans shall be excluded until actually paid unless--

(i) The Contractor's practice is to make contributions to the retirement fund quarterly or more frequently; and

(ii) The contribution does not remain unpaid 30 days after the end of the applicable quarter or shorter payment period (any contribution remaining unpaid shall be excluded from the Contractor's indirect costs for payment purposes).

(3) Notwithstanding the audit and adjustment of invoices or vouchers under paragraph (g) of this clause, allowable indirect costs under this contract shall be obtained by applying indirect cost rates established in accordance with paragraph (d) of this clause.

(4) Any statements in specifications or other documents incorporated in this contract by reference designating performance of services or furnishing of materials at the Contractor's expense or at no cost to the Government shall be disregarded for purposes of cost-reimbursement under this clause.

(c) Small business concerns. A small business concern may receive more frequent payments than every 2 weeks.

(d) Final indirect cost rates. (1) Final annual indirect cost rates and the appropriate bases shall be established in accordance with Subpart 42.7 of the Federal Acquisition Regulation (FAR) in effect for the period covered by the indirect cost rate proposal.

(2)(i) The Contractor shall submit an adequate final indirect cost rate proposal to the Contracting Officer (or cognizant Federal agency official) and auditor within the 6-month period following the expiration of each of its fiscal years. Reasonable extensions, for exceptional circumstances only, may be requested in writing by the Contractor and granted in writing by the Contracting Officer. The Contractor shall support its proposal with adequate supporting data.

(ii) The proposed rates shall be based on the Contractor's actual cost experience for that period. The appropriate Government representative and the Contractor shall establish the final indirect cost rates as promptly as practical after receipt of the Contractor's proposal.

(3) The Contractor and the appropriate Government representative shall execute a written understanding setting forth the final indirect cost rates. The understanding shall specify (i) the agreed-upon final annual indirect cost rates, (ii) the bases to which the rates apply, (iii) the periods for which the rates apply, (iv) any specific indirect cost items treated as direct costs in the settlement, and (v) the affected contract and/or subcontract, identifying any with advance agreements or special terms and the applicable rates. The understanding shall not change any monetary ceiling, contract obligation, or specific cost allowance or disallowance provided for in this contract. The understanding is incorporated into this contract upon execution.

(4) Failure by the parties to agree on a final annual indirect cost rate shall be a dispute within the meaning of the Disputes clause.

(5) Within 120 days (or longer period if approved in writing by the Contracting Officer) after settlement of the final annual indirect cost rates for all years of a physically complete contract, the Contractor shall submit a completion invoice or voucher to reflect the settled amounts and rates.

(6)(i) If the Contractor fails to submit a completion invoice or voucher within the time specified in paragraph (d)(5) of this clause, the Contracting Officer may--

(A) Determine the amounts due to the Contractor under the contract; and

(B) Record this determination in a unilateral modification to the contract.

(ii) This determination constitutes the final decision of the Contracting Officer in accordance with the Disputes clause.

(e) Billing rates. Until final annual indirect cost rates are established for any period, the Government shall reimburse the Contractor at billing rates established by the Contracting Officer or by an authorized representative (the cognizant auditor), subject to adjustment when the final rates are established. These billing rates--

(1) Shall be the anticipated final rates; and

(2) May be prospectively or retroactively revised by mutual agreement, at either party's request, to prevent substantial overpayment or underpayment.

(f) Quick-closeout procedures. Quick-closeout procedures are applicable when the conditions in FAR 42.708(a) are satisfied.

(g) Audit. At any time or times before final payment, the Contracting Officer may have the Contractor's invoices or vouchers and statements of cost audited. Any payment may be (1) Reduced by amounts found by the Contracting Officer not to constitute allowable costs or (2) Adjusted for prior overpayments or underpayments.

(h) Final payment. (1) Upon approval of a completion invoice or voucher submitted by the Contractor in accordance with paragraph (d)(4) of this clause, and upon the Contractor's compliance with all terms of this contract, the Government shall promptly pay any balance of allowable costs and that part of the fee (if any) not previously paid.

(2) The Contractor shall pay to the Government any refunds, rebates, credits, or other amounts (including interest, if any) accruing to or received by the Contractor or any assignee under this contract, to the extent that those amounts are properly allocable to costs for which the Contractor has been reimbursed by the Government. Reasonable expenses incurred by the Contractor for securing refunds, rebates, credits, or other amounts shall be allowable costs if approved by the Contracting Officer. Before final payment under this contract, the Contractor and each assignee whose assignment is in effect at the time of final payment shall execute and deliver--

(i) An assignment to the Government, in form and substance satisfactory to the Contracting Officer, of refunds, rebates, credits, or other amounts (including interest, if any) properly allocable to costs for which the Contractor has been reimbursed by the Government under this contract; and

(ii) A release discharging the Government, its officers, agents, and employees from all liabilities, obligations, and claims arising out of or under this contract, except--

(A) Specified claims stated in exact amounts, or in estimated amounts when the exact amounts are not known;

(B) Claims (including reasonable incidental expenses) based upon liabilities of the Contractor to third parties arising out of the performance of this contract; provided, that the claims are not known to the Contractor on the date of the execution of the release, and that the Contractor gives notice of the claims in writing to the Contracting Officer within 6 years following the release date or notice of final payment date, whichever is earlier; and

(C) Claims for reimbursement of costs, including reasonable incidental expenses, incurred by the Contractor under the patent clauses of this contract, excluding, however, any expenses arising from the Contractor's indemnification of the Government against patent liability.

(End of clause)

52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION (JUNE 2007)

(a) Definitions. As used in this clause--

Long-term contract means a contract of more than five years in duration, including options. However, the term does not include contracts that exceed five years in duration because the period of performance has been extended for a cumulative period not to exceed six months under the clause at 52.217-8, Option to Extend Services, or other appropriate authority.

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (c) of this clause.

(b) If the Contractor represented that it was a small business concern prior to award of this contract, the Contractor shall rerepresent its size status according to paragraph (e) of this clause or, if applicable, paragraph (g) of this clause, upon the occurrence of any of the following:

(1) Within 30 days after execution of a novation agreement or within 30 days after modification of the contract to include this clause, if the novation agreement was executed prior to inclusion of this clause in the contract.

(2) Within 30 days after a merger or acquisition that does not require a novation or within 30 days after modification of the contract to include this clause, if the merger or acquisition occurred prior to inclusion of this clause in the contract.

(3) For long-term contracts--

(i) Within 60 to 120 days prior to the end of the fifth year of the contract; and

(ii) Within 60 to 120 days prior to the exercise date specified in the contract for any option thereafter.

(c) The Contractor shall rerepresent its size status in accordance with the size standard in effect at the time of this rerepresentation that corresponds to the North American Industry Classification System (NAICS) code assigned to this contract. The small business size standard corresponding to this NAICS code can be found at http://www.sba.gov/services/contractingopportunities/sizestandardstopics/.

(d) The small business size standard for a Contractor providing a product which it does not manufacture itself, for a contract other than a construction or service contract, is 500 employees.

(e) Except as provided in paragraph (g) of this clause, the Contractor shall make the rerepresentation required by paragraph (b) of this clause by validating or updating all its representations in the Online Representations and Certifications Application and its data in the Central Contractor Registration, as necessary, to ensure they reflect current status. The Contractor shall notify the contracting office by e-mail, or otherwise in writing, that the data have been validated or updated, and provide the date of the validation or update.

(f) If the Contractor represented that it was other than a small business concern prior to award of this contract, the Contractor may, but is not required to, take the actions required by paragraphs (e) or (g) of this clause.

(g) If the Contractor does not have representations and certifications in ORCA, or does not have a representation in ORCA for the NAICS code applicable to this contract, the Contractor is required to complete the following rerepresentation and submit it to the contracting office, along with the contract number and the date on which the rerepresentation was completed:

The Contractor represents that it ( ) is, ( ) is not a small business concern under NAICS Code 541712- assigned to contract number HR0011-09-C-0053.

_____

(Contractor to sign and date and insert authorized signer's name and title).

(End of clause)

52.222-2 PAYMENT FOR OVERTIME PREMIUMS (JUL 1990)

(a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed zero or the overtime premium is paid for work --

(1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;

(2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;

(3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or

(4) That will result in lower overall costs to the Government.

(b) Any request for estimated overtime premiums that exceeds the amount specified above shall include all estimated overtime for contract completion and shall--

(1) Identify the work unit; e.g., department or section in which the requested overtime will be used, together with present workload, staffing, and other data of the affected unit sufficient to permit the Contracting Officer to evaluate the necessity for the overtime;

(2) Demonstrate the effect that denial of the request will have on the contract delivery or performance schedule;

(3) Identify the extent to which approval of overtime would affect the performance or payments in connection with other Government contracts, together with identification of each affected contract; and

(4) Provide reasons why the required work cannot be performed by using multishift operations or by employing additional personnel.

(End of clause)

52.244-2 SUBCONTRACTS (JUN 2007)

(a) Definitions. As used in this clause--

Approved purchasing system means a Contractor's purchasing system that has been reviewed and approved in accordance with Part 44 of the Federal Acquisition Regulation (FAR).

Consent to subcontract means the Contracting Officer's written consent for the Contractor to enter into a particular subcontract.

Subcontract means any contract, as defined in FAR Subpart 2.1, entered into by a subcontractor to furnish supplies or services for performance of the prime contract or a subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.
purchase orders.

(b) When this clause is included in a fixed-price type contract, consent to subcontract is required only on unpriced contract actions (including unpriced modifications or unpriced delivery orders), and only if required in accordance with paragraph (c) or (d) of this clause.

(c) If the Contractor does not have an approved purchasing system, consent to subcontract is required for any subcontract that—

(1) Is of the cost-reimbursement, time-and-materials, or labor-hour type; or

(2) Is fixed-price and exceeds—

(i) For a contract awarded by the Department of Defense, the Coast Guard, or the National Aeronautics and Space Administration, the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of the contract; or

(ii) For a contract awarded by a civilian agency other than the Coast Guard and the National Aeronautics and Space Administration, either the simplified acquisition threshold or 5 percent of the total estimated cost of the contract.

(d) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer's written consent before placing the following subcontracts:

See Section H-10

(e)(1) The Contractor shall notify the Contracting Officer reasonably in advance of placing any subcontract or modification thereof for which consent is required under paragraph (b), (c), or (d) of this clause, including the following information:

(i) A description of the supplies or services to be subcontracted.

(ii) Identification of the type of subcontract to be used.

(iii) Identification of the proposed subcontractor.

(iv) The proposed subcontract price.

(v) The subcontractor's current, complete, and accurate cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions.

(vi) The subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract.

(vii) A negotiation memorandum reflecting—

(A) The principal elements of the subcontract price negotiations;

(B) The most significant considerations controlling establishment of initial or revised prices;

(C) The reason cost or pricing data were or were not required;

(D) The extent, if any, to which the Contractor did not rely on the subcontractor's cost or pricing data in determining
the price objective and in negotiating the final price;

(E) The extent to which it was recognized in the negotiation that the subcontractor's cost or pricing data were not accurate, complete, or current; the action taken by the Contractor and the subcontractor; and the effect of any such defective data on the total price negotiated;

(F) The reasons for any significant difference between the Contractor's price objective and the price negotiated; and

(G) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.

(2) The Contractor is not required to notify the Contracting Officer in advance of entering into any subcontract for which consent is not required under paragraph (c), (d), or (e) of this clause.

(f) Unless the consent or approval specifically provides otherwise, neither consent by the Contracting Officer to any subcontract nor approval of the Contractor's purchasing system shall constitute a determination—

(1) Of the acceptability of any subcontract terms or conditions;

(2) Of the allowability of any cost under this contract; or

(3) To relieve the Contractor of any responsibility for performing this contract.

(g) No subcontract or modification thereof placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement type subcontracts shall not exceed the fee limitations in FAR 15.404-4(c)(4)(i).

(h) The Contractor shall give the Contracting Officer immediate written notice of any action or suit filed and prompt notice of any claim made against the Contractor by any subcontractor or vendor that, in the opinion of the Contractor, may result in litigation related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.

(i) The Government reserves the right to review the Contractor's purchasing system as set forth in FAR Subpart 44.3.

(j) Paragraphs (c) and (e) of this clause do not apply to the following subcontracts, which were evaluated during negotiations:

See Section H-10

(End of clause)

52.247-1 COMMERCIAL BILL OF LADING NOTATIONS (FEB 2006)

When the Contracting Officer authorizes supplies to be shipped on a commercial bill of lading and the Contractor will be reimbursed these transportation costs as direct allowable costs, the Contractor shall ensure before shipment is made that the commercial shipping documents are annotated with either of the following notations, as appropriate:

(a) If the Government is shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the Defense Advanced Research Projects Agency and the actual total transportation charges paid to the carrier(s) by the consignor or consignee are assignable to, and shall be reimbursed by, the Government."

(b) If the Government is not shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the Defense Advanced Research Projects Agency and the actual total transportation charges paid to the carrier(s) by the consignor or consignee shall be reimbursed by the Government, pursuant to cost-reimbursement contract no. HR0011-09-C-0053. This may be confirmed by contacting Chris Glista at christopher.glista@darpa.mil."

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://farsite.hill.af.mil

(End of clause)

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

252.204-7006 BILLING INSTRUCTIONS (OCT 2005)

When submitting a request for payment, the Contractor shall--

(a) Identify the contract line item(s) on the payment request that reasonably reflect contract work performance; and

(b) Separately identify a payment amount for each contract line item included in the payment request.

(End of clause)

252.211-7003 ITEM IDENTIFICATION AND VALUATION (AUG 2008)

(a) Definitions. As used in this clause'

Automatic identification device means a device, such as a reader or interrogator, used to retrieve data encoded on machine-readable media.

Concatenated unique item identifier means--

(1) For items that are serialized within the enterprise identifier, the linking together of the unique identifier data elements in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier; or

(2) For items that are serialized within the original part, lot, or batch number, the linking together of the unique identifier data elements in order of the issuing agency code; enterprise identifier; original part, lot, or batch number; and serial number within the original part, lot, or batch number.

Data qualifier means a specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows.

DoD recognized unique identification equivalent means a unique identification method that is in commercial use and has been recognized by DoD. All DoD recognized unique identification equivalents are listed at http://www.acq.osd.mil/dpap/pdi/uid/iuid_equivalents.html.

Enterprise means the entity (e.g., a manufacturer or vendor) responsible for assigning unique item identifiers to items.

Enterprise identifier means a code that is uniquely assigned to an enterprise by an issuing agency.

Government's unit acquisition cost means--

(1) For fixed-price type line, subline, or exhibit line items, the unit price identified in the contract at the time of delivery;

(2) For cost-type or undefinitized line, subline, or exhibit line items, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery; and

(3) For items produced under a time-and-materials contract, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery.

Issuing agency means an organization responsible for assigning a non-repeatable identifier to an enterprise (i.e., Dun & Bradstreet's Data Universal Numbering System (DUNS) Number, GS1 Company Prefix, or Defense Logistics Information System (DLIS) Commercial and Government Entity (CAGE) Code).

Issuing agency code means a code that designates the registration (or controlling) authority for the enterprise identifier.

Item means a single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts.

Lot or batch number means an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or a batch, all of which were manufactured under identical conditions.

Machine-readable means an automatic identification technology media, such as bar codes, contact memory buttons, radio frequency identification, or optical memory cards.

Original part number means a combination of numbers or letters assigned by the enterprise at item creation to a class of items with the same form, fit, function, and interface.

Parent item means the item assembly, intermediate component, or subassembly that has an embedded item with a unique item identifier or DoD recognized unique identification equivalent.

Serial number within the enterprise identifier means a combination of numbers, letters, or symbols assigned by the enterprise to an item that provides for the differentiation of that item from any other like and unlike item and is never used again within the enterprise.

Serial number within the part, lot, or batch number means a combination of numbers or letters assigned by the enterprise to an item that provides for the differentiation of that item from any other like item within a part, lot, or batch number assignment.

Serialization within the enterprise identifier means each item produced is assigned a serial number that is unique among all the tangible items produced by the enterprise and is never used again. The enterprise is responsible for ensuring unique serialization within the enterprise identifier.

Serialization within the part, lot, or batch number means each item of a particular part, lot, or batch number is assigned a unique serial number within that part, lot, or batch number assignment. The enterprise is responsible for ensuring unique serialization within the part, lot, or batch number within the enterprise identifier.

Unique item identifier means a set of data elements marked on items that is globally unique and unambiguous. The term includes a concatenated unique item identifier or a DoD recognized unique identification equivalent.

Unique item identifier type means a designator to indicate which method of uniquely identifying a part has been used. The current list of accepted unique item identifier types is maintained at http://www.acq.osd.mil/dpap/pdi/uid/uii_types.html.

(b) The Contractor shall deliver all items under a contract line, subline, or exhibit line item.

(c) Unique item identifier.

(1) The Contractor shall provide a unique item identifier for the following:

(i) All delivered items for which the Government's unit acquisition cost is $5,000 or more.

(ii) The following items for which the Government's unit acquisition cost is less than $5,000:

Contract line, subline, or exhibit line item No.	Item description
n/a	

(iii) Subassemblies, components, and parts embedded within delivered items as specified in Attachment Number -- -- **n/a.**

(2) The unique item identifier and the component data elements of the DoD unique item identification shall not change over the life of the item.

(3) Data syntax and semantics of unique item identifiers. The Contractor shall ensure that--

(i) The encoded data elements (except issuing agency code) of the unique item identifier are marked on the item using one of the following three types of data qualifiers, as determined by the Contractor:

(A) Application Identifiers (AIs) (Format Indicator 05 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(B) Data Identifiers (DIs) (Format Indicator 06 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(C) Text Element Identifiers (TEIs) (Format Indicator 12 of ISO/IEC International Standard 15434), in accordance with the Air Transport Association Common Support Data Dictionary; and

(ii) The encoded data elements of the unique item identifier conform to the transfer structure, syntax, and coding of messages and data formats specified for Format Indicators 05, 06, and 12 in ISO/IEC International Standard 15434, Information Technology--Transfer Syntax for High Capacity Automatic Data Capture Media.

(4) Unique item identifier.

(i) The Contractor shall--

(A) Determine whether to--

(1) Serialize within the enterprise identifier;

(2) Serialize within the part, lot, or batch number; or

(3) Use a DoD recognized unique identification equivalent; and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; DoD recognized unique identification equivalent; and for serialization within the part, lot, or batch number only: original part, lot, or batch number) on items requiring marking by paragraph (c)(1) of this clause, based on the criteria provided in the version of MIL-STD-130, Identification Marking of U.S. Military Property, cited in the contract Schedule.

(ii) The issuing agency code--

(A) Shall not be placed on the item; and

(B) Shall be derived from the data qualifier for the enterprise identifier.

(d) For each item that requires unique item identification under paragraph (c)(1)(i) or (ii) of this clause, in addition to the information provided as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the Contractor shall report at the time of delivery, either as part of, or associated with, the Material Inspection and Receiving Report, the following information:

(1) Unique item identifier.

(2) Unique item identifier type.

(3) Issuing agency code (if concatenated unique item identifier is used).

(4) Enterprise identifier (if concatenated unique item identifier is used).

(5) Original part number (if there is serialization within the original part number).

(6) Lot or batch number (if there is serialization within the lot or batch number).

(7) Current part number (optional and only if not the same as the original part number).

(8) Current part number effective date (optional and only if current part number is used).

(9) Serial number (if concatenated unique item identifier is used).

(10) Government's unit acquisition cost.

(11) Unit of measure.

(e) For embedded subassemblies, components, and parts that require DoD unique item identification under paragraph (c)(1)(iii) of this clause, the Contractor shall report as part of, or associated with, the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(1) Unique item identifier of the parent item under paragraph (c)(1) of this clause that contains the embedded subassembly, component, or part.

(2) Unique item identifier of the embedded subassembly, component, or part.

(3) Unique item identifier type.**

(4) Issuing agency code (if concatenated unique item identifier is used).**

(5) Enterprise identifier (if concatenated unique item identifier is used).**

(6) Original part number (if there is serialization within the original part number).**

(7) Lot or batch number (if there is serialization within the lot or batch number).**

(8) Current part number (optional and only if not the same as the original part number).**

(9) Current part number effective date (optional and only if current part number is used).**

(10) Serial number (if concatenated unique item identifier is used).**

(11) Description.

** Once per item.

(f) The Contractor shall submit the information required by paragraphs (d) and (e) of this clause in accordance with the data submission procedures at http://www.acq.osd.mil/dpap/pdi/uid/data_submission_information.html.

(g) Subcontracts. If the Contractor acquires by subcontract, any item(s) for which unique item identification is required in accordance with paragraph (c)(1) of this clause, the Contractor shall include this clause, including this paragraph (g), in the applicable subcontract(s).

(End of clause)

252.235-7010 Acknowledgment of Support and Disclaimer. (MAY 1995)

(a) The Contractor shall include an acknowledgment of the Government's support in the publication of any material based on or developed under this contract, stated in the following terms: This material is based upon work supported by the Defense Advanced Research Projects Agency under Contract No. HR0011-09-C-0053.

(b) All material, except scientific articles or papers published in scientific journals, must, in addition to any notices or disclaimers by the Contractor, also contain the following disclaimer: Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Defense Advanced Research Projects Agency.

Section J - List of Documents, Exhibits and Other Attachments

Exhibit/Attachment Table of Contents

DOCUMENT TYPE	DESCRIPTION	PAGES	DATE
Attachment 1	Statement of Work	7	20-FEB-2009
Attachment 2	COR Letter	3	13-JAN-2009
Attachment 3	Technical Data Rights Assertions	18	25-FEB-2009
Attachment 4	Go/No-Go Criteria	2	13-FEB-2009
Attachment 5	DD 254 Rev. 1	4	13-MAR-2009
Attachment 6	Authorization to Incur Pre-Award Costs	2	05-MAR-2009

Phase I: Vulcan Program Statement of Work:

Turbine/Constant Volume Combustion Engine Demonstration Program (Vulcan)

1.0 Acronyms

ATP	Authorization to Proceed
CDE	Continuous Detonation Engines
CoDR	Conceptual Design Review
CTDP	Critical Technology Development Plan
CVC	Constant Volume Combustion
CVCE	Constant Volume Combustion Engine
DARPA	Defense Advanced Research Projects Agency
FST	Full Scale Testing
IDR	Interim Design Review
IMS	Integrated Master Schedule
IPMT	Integrated Program Management Team
IPT	Integrated Program Team
OVE	Operational Vulcan Engine
OVV	Operational Vulcan Vehicle
PDE	Pulsed Detonation Engine
SOW	Statement of Work
SRR	System Requirements Review
TRL	Technology Readiness Level
WBS	Work Breakdown Structure
VGR	Vulcan Ground Research

WBS Description and Outline

The overall WBS is constructed using a Phase/Integrated Product Team (IPT)/Task/Subtask nomenclature. In Phase I (WBS 1000 series), it is intended that three IPT's shall be engaged to produce the products of Phase I as follows:

- WBS 1100 - The OVE Design IPT shall generate the OVE concepts.
- WBS 1200 - The VGR Engine IPT shall derive, from the OVE requirements, both a CTDP and a VGR test article concept that together shall plan all needed Vulcan technology demonstrations.
- WBS 1700 - The Integrated Program Management Team (IPMT) shall conduct the Vulcan project management and program support (reviews, reports, and proposal update) functions.

The remaining four IPT's (Inlet, Turbine Engine, CVC, and Nozzle) shall not be activated separately in Phase I, but rather the OVE and VGR teams shall imbed personnel, with these multidisciplinary skills, to more efficiently derive detailed requirements for the program.

Within the active Level 2 WBS elements, The contractor shall define the Phase I tasks (Level 3) and subtasks (Level 4) within the elements. Figure 1, shown below, represents the suggested WBS to Level 4 for Phase I only.

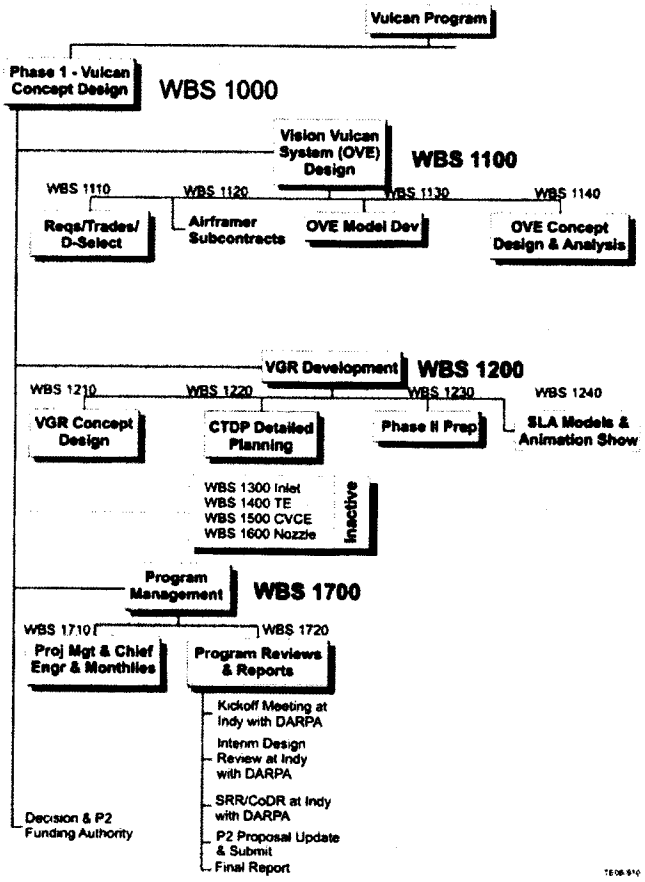

Figure 1: Fourth Level WBS, Phase I.

SOW (by WBS)

WBS 1100 – OVE Concept Design
WBS 1100 contains the resources required to develop the OVE concept.

WBS 1110 – Requirements/Trades/Downselect
The contractor shall determine the OVE designs that shall serve as the basis for the VGR engine concept design work.

WBS 1110 begins with the identification of possible inlet, TE, CVCE, and nozzle architectures that could be arranged as an OVE. In this early evaluation, multiple types of Vulcan components shall be considered. The contractor shall perform an initial screening of these architectures down to 4 to 6 configurations on which The contractor shall perform more in-depth trade studies.

In parallel, The contractor shall work with the air-framer to derive some initial requirements and interfaces for a Vulcan type propulsion system.

Tasks
The contractor shall develop initial requirements for the Vulcan Propulsion System based upon DARPA initial requirements and vehicle requirements provided by an airframer. The contractor shall develop candidate concepts and conduct trade studies against the above requirements to down select final candidates for subsequent conceptual design.

Deliverables
Trade Study Results and selected concepts to be presented at the Interim Design Review (IDR) that occurs 3 months after ATP.

WBS 1120 – Airframer Subcontract
This WBS contains the resources for the airframer subcontract and related procurement resources. The airframer SOW shall be consistent with his participation in the trade studies and concept design.

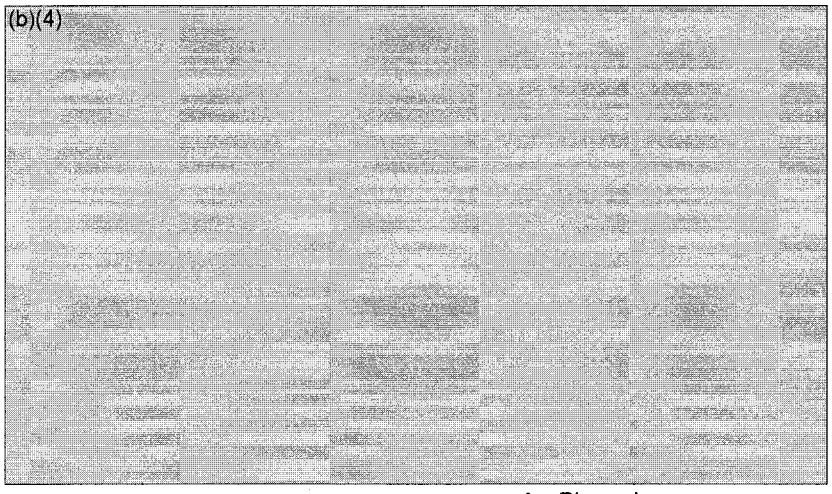

Figure 2: Trade study process for Phase I.

Tasks
The contractor shall subcontract consulting services from an Air Vehicle Prime to provide inputs to the Vulcan Concept Design effort. Specific inputs shall be propulsion / airframe integration (PAI) related requirements and interfaces.

Deliverables
No direct deliverables from this WBS to DARPA. Results however are expected to be imbedded in the Concept Design presented at Concept Design Review (CoDR/SRR) that occurs six months after ATP.

WBS 1130 – Engine Performance Math Model Development
In WBS 1130, the team shall construct a Engine Performance Math Model to allow quantitative evaluation of Vulcan concepts as detailed in the proposed model hierarchy and construct.

Tasks
The contractor shall construct a high level Engine Performance Math Model of the Vulcan Propulsion System. This model shall be suitable for predicting the performance of the contractor's Vulcan propulsion system.

Deliverables
An executable version of the contractor's Engine Performance Math Model, that includes the CVC, turbine, inlet and nozzle shall be provided to DARPA at month 6 of Phase I. The contractor shall also provide a ramjet model as a replacement for the CVC engine for performance comparison.

WBS 1140 – OVE Concept Design
In WBS 1140, the team shall perform a next level concept design of the two OVE concepts selected in WBS 1110. This refinement shall provide more detailed definition of the concepts so as to allow derivation of requirements for the VGR demonstrator engine. The airframer shall be supporting with 'flyoff' evaluations of the Vulcan propulsion systems for 'closure' against a notional reference mission.

This task shall culminate in a CoDR level SRR and design review with DARPA, congruent with the CoDR of VGR.

Tasks
The contractor shall develop a Concept Design of the Operational Vulcan Engine (OVE). This design shall be of suitable fidelity to drive out requirements for technologies to be matured and demonstrated in the Vulcan Program. The design shall serve as the basis for SLA models and an animation that are delivered under separate WBS.

Deliverables
Concept Design package of the Vulcan Engine (contractor format) delivered at CoDR.
List of OVE Technologies and their TRL levels. These technologies will be incorporated with the CTDP that is delivered in element 1220

WBS 1200 — VGR Concept Design
This Level 2 WBS contains the resources required to derive the conceptual design of the VGR engine. The VGR concept shall then provide requirements for the CTDP needed to demonstrate key technologies and reduce risk to a successful Vulcan propulsion demonstration in Phase IV.

WBS 1210 — VGR Concept Development
In WBS 1210, the team shall use the top level requirements from the OVE (WBS 1140) and shall perform a concept design of the VGR demonstrator. VGR engine CAD layouts shall be constructed. Initial facility interface requirements shall be established. The VGR performance, using the Phase I Engine Performance Math Model, shall be determined. This performance shall be "bookkept" from expected tunnel results up to the vehicle level uninstalled thrust levels, to show that it meets or exceeds go Criterion No. 1 for Phase II start.

Tasks
The contractor shall develop a Concept Design of the Vulcan Engine to be tested in Phase IV and the Phase III Demonstration System (CVC Engine, Flow Path Switching Inlet and Flow Path Switching Nozzle. This design shall be of suitable fidelity to drive out requirements for risk reduction efforts and testing required in Phase II-IV of the Vulcan Program.

Deliverables
Concept Design package of the Vulcan Engine tested in Phase IV and the Phase III Demonstration System (CVC Engine, Flow Path Switching Inlet and Flow Path Switching Nozzle) delivered at CoDR.

WBS 1220 — CTDP Detailed Planning
This Level 3 WBS element provides resources to develop the detailed CTDP. This plan shall form the bulk of the analytical and experimental test activity in Phase II of the program as the contractor mature and demonstrate key Vulcan Propulsion technologies. The plan shall identify specific needs for data to anchor models and design tools, so as to reduce risk to the successful testing of the components in Phase III and integration into the VGR testing in Phase IV.

The CTDP delivered shall include quantifiable success metrics for each major effort within to assure that technologies are sufficiently matured and risk sufficiently reduced. This CTDP is Phase II go criterion No. 2.

Tasks
The contractor shall refine their proposed Critical Technology Development Plan. This plan shall contain test and analytical efforts that develop and mature Vulcan propulsion technologies and to reduce risks to successful demonstrator efforts in subsequent phases. The content of this plan should be of suitable fidelity to support Phase II proposal preparation.

Deliverables

The CTDP from the one contained in the proposal at the IDR at month three after ATP. A final CTDP will be delivered as part of the CoDR/SRR that occurs 6 months after ATP.

WBS 1230 — Phase II Preparation
This Level 3 WBS element provides the resources for the team to begin detailed preparation for execution of Phase II. This work follows after the CoDR but before the authorization to proceed (ATP) of Phase II. It allows for preparation of work plans, detailed schedules, procurement requests, etc to reduce schedule risk to Phase II. The government will provide additional guidance during Phase I of the program.

Tasks
The contractor shall conduct subtasks that help to prepare for Phase II start.

Deliverables
A Phase II Program Plan at a minimum WBS level 3 with all testing called out as separate elements shall be delivered at the CoDR/SRR review that occurs six months after ATP. A detailed Phase II cost proposal update at a minimum WBS level 4 that includes a ROM cost update for Phase III and IV will be delivered seven months after ATP

WBS 1240 — SLA Models & Animation
This Level 3 WBS provides resources for the preparation of Stereo Lithography type plastic models of our selected Vulcan propulsion system. This model shall be suitable for use by DARPA and our team to help explain the system and support program marketing activities. Additionally, this WBS provides for the creation of a digital animation of the Vulcan system operation (turbine engine mode, combined mode, CVC mode) across the Mach range of operation. Again, these products help to explain the concept.

Tasks
The contractor shall produce Stereo Lithography or equivalent models of the OVE concept. Scale is to be approved by DARPA but shall be of a length so as to be portable. The model shall be modular to the extent suitable for description of the modules of the Vulcan system including inlet system, TE, CVCE, and Nozzle.

Deliverables
The SLA models and computer animation of the Vulcan Engine are to be delivered 6 months after ATP.

WBS 1700 — Program Management & Support
This Level 2 WBS provides resources for the management and support of the Vulcan program. It includes at Level 3 tasks for project management and for program support.

WBS 1710 — Project Management
This Level 3 WBS provides resources to The contractor(Level 4 WBS 1711) and to (b)(4) (Level 4 WBS 1712) for management of the Vulcan program. Included in this task are project management of scope, schedule, and cost, contracts management, data management, and a chief engineer to oversee the technical effort and risk management.

Tasks
The contractor shall provide project management to control scope, schedule, and cost of the contractor effort. This will include a monthly status telecom with the DARPA program manager.

Deliverables
Monthly Technical & Financial Status report in DARPA format, which contain technical and financial status.

WBS 1720 — Program Support

This Level 3 WBS element provides resources to the contractor(Level 4 WBS 1721) and (b)(4) (Level 4 WBS 1722) for support of the Vulcan program. Included are the major reviews such as the kickoff, interim design review (IDR), and conceptual design review (CoDR) and reports such as the final report. In future phases, this WBS (x720) can also provide for program support, conference papers, marketing efforts, special meetings, etc., as directed by DARPA, outside the technical and management scope. In Phase I, this WBS provides the resources for an updated proposal for Phase II, as requested in the BAA.

Tasks

The contractor shall conduct program level reviews including a Kickoff, Interim Design Review, and a System Requirements Review / Concept Design Review. Additionally, the contractor shall provide a final report at the end of Phase I to summarize the accomplishments. Additionally, in this WBS, the contractor shall provide an updated Phase II proposal, detailed to Level 4 WBS with ROM updates to Phases III and IV to WBS Level 3.

Deliverables

Kickoff Review Package, IDR review package (which includes an update to the CTDP, trade studies and concept designs) – three months after ATP, SRR/CoDR review package (which includes the final CTDP, SRR of the Vulcan Engine and Phase III demonstration system, Vulcan SLA modes, Phase II program Plan, Vulcan Computer Animation, Vulcan Engine Performance Math Model) – six months after ATP, Phase II Proposal update – seven months after ATP and final report – eight months after ATP.

The Phase I IMS

Phase I is an 8-month effort. Figure 2 presents the integrated master schedule, to WBS level 4, consistent with the WBS described above. The figure shows the critical path through Phase I, i.e., definition of the OVE concept, followed by the definition of the demonstrator concept and resulting CTDP, followed by use of those as inputs for the delivery of an updated Phase II proposal.

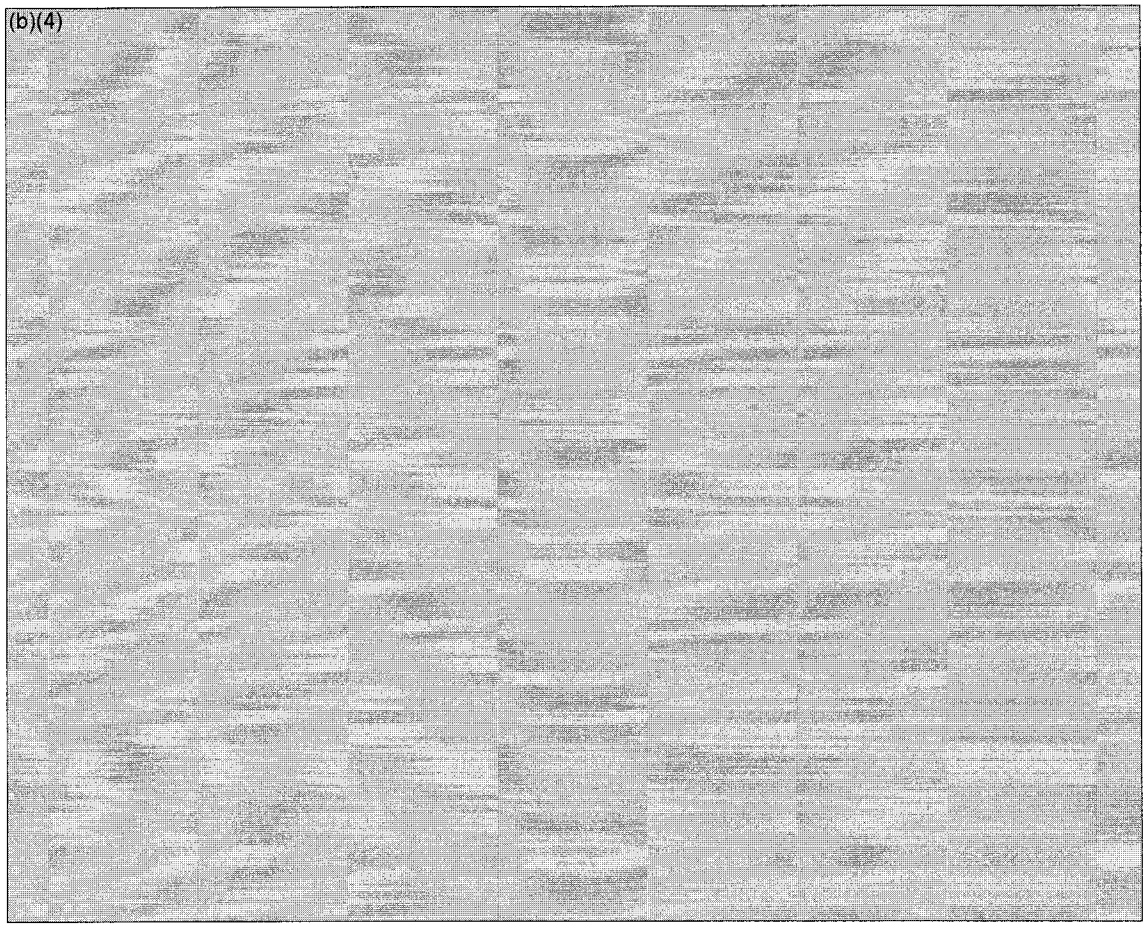

Figure 2: Phase I integrated master schedule with critical path.

January 13, 2009

MEMORANDUM FOR CONTRACTING OFFICER'S REPRESENTATIVE

FROM: DARPA, Contracts Management Office

TO: Major David Hopper
AFRL/RZTA Bldg 18 Room D027
1950 Fifth St
WPAFB, OH 45433
David.Hopper2@wpafb.af.mil

SUBJECT: Appointment as Contracting Officer's Representative (COR)

1. You are hereby appointed as the Contracting Officer's Representative for the VULCAN Program – Phase I:

Contract Number: HR0011-09-C-0053, LibertyWorks

2. This appointment authorizes and designates you to perform the following duties and/or responsibilities as specified herein:

a. Furnish plans, schedules, specifications, descriptions, and other documents to the contractor as required by the contract.

b. Assist the contractor in interpreting technical aspects of the contract specifications/statement of work. Differences of opinion and interpretations which could affect the terms and conditions of the contract will be referred to the contracting officer for resolution.

c. Provide Government recommendations/approvals to the contractor promptly in all cases where the contract calls for technical approval.

d. Observe, monitor, and assess the contractor's performance under the terms of the contract. This includes reporting promptly to the contracting officer any failures, delays, or significant deviations of performance, quality, costs, or other actions which might jeopardize contract performance. In the performance of the duties delegated to you in this letter, you are cautioned that you could be held personally liable for actions taken or directions given by you to the contractor that are beyond the authorities given to you in this letter. The duties or authorities in this letter are not delegable; therefore, you must advise the Contracting Officer or the Contract Administrator/Specialist immediately when you are unable to perform these duties.

3. In your dealings with the contractor you must not give technical direction as though the contractor's employees are Government employees. You must maintain a formal, arms-length relationship with the contractor in order to avoid even an appearance that the contract is one for personal services. If the contractor's performance takes place in a Government facility, then to the maximum extent practicable, the contractor's work area should be physically separated from areas in which Government employees work, and communication with the contractor's employees on contractual matters should be only through that contractor employee(s) designated by the contractor to supervise them. You must not give any direction to the contractor that is not authorized by the statement of work because it is not the intent of the Government that a contractor be required to do anything that is not included in the contract.

4. You are responsible for providing prompt notification to the contracting officer any significant deficiencies with respect to contractor performance or other actions which might jeopardize contract performance.

5. You are not authorized by this letter to take any action, either directly or indirectly, that could result in a change in the pricing, quantity, quality, place of performance, delivery schedule or any other terms and conditions of the basic contract, or to direct the accomplishment of effort which would exceed the scope of the basic contract. You must be especially cautious in providing interpretation of the specifications/ statement of work. The agreement reached or technical direction given must be formalized in writing with copies to the contracting officer. You shall also inform the contractor that if he believes that the COR's interpretation is erroneous, the contractor must notify the contracting officer in writing concerning the details of his position.

6. Specific duties in addition to those above are as follows:

   a. Control all government technical interfaces with the contractor.

   b. Ensure that copies of government technical correspondence are forwarded to the contracting officer for placement in the contract file.

   c. Promptly furnish documentation on any requests for change, deviation, or waiver (whether generated by the Government or the contractor) to the contracting officer for appropriate action.

   d. Review and, if required (i.e., Fixed Price Payments), accept invoices submitted through WAWF as stipulated in Section G of the Contract.

   e. Provide required review of Patent/Invention Disclosures made in I-Edison (http://www.iedison.gov).

   f. The COR must maintain a separate file for each contract for which he/she acts as COR. The file should serve as a repository and record of all documents and communications between the contractor and the COR. At a minimum, the file must

include a copy of the contract and all modifications as well as the COR appointment letter. Examples of other file documentation may include:

- Reports required per the contract, e.g. interim and final technical or patent reports
- Memoranda for Record documenting important contract discussions
- Records of formal meetings, e.g. post award conference, program reviews, etc.

g. Assist ACO and/or PCO, as requested, with closeout activities at completion of contract period of performance.

7. If this is your first appointment as a COR or if you have not performed COR duties within the last two years, and in order to comply with DFARS 201.6-2, you must complete COR training immediately and provide a copy of the training certificate so that you can properly execute your responsibilities under this contract. A good source of COR training is available via a web-based module, CLC 106, "Contracting Officer Representative with a Mission Focus" at www.dau.mil .

8. Your appointment as COR for this effort expires upon final disposition of the contract.

9. Your good judgment in performing your duties under the contract will have an important effect on the value of the performance obtained by the Government.

(b)(6)

Christopher L. Glista
Contracting Officer

1/13/09
Date

David Hopper, Maj, USAF
Contracting Officer's Representative

13 Jan 09
Date

Technical Data to be Furnished with Restrictions	Basis for Assertion	Asserted Rights Category	Name Asserting Rights*
(b)(4)	(b)(4)	(b)(4)	(b)(4)
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(b)(4)	(b)(4)	(b)(4)	(b)(4)

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* Rolls-Royce North American Technologies Inc. (LibertyWork®), formerly AADC, is independently incorporated and is a wholly-owned subsidiary of Rolls-Royce Corporation, a U.S. company.

// signed //
Elaine T. Golden, Contracts Manager

February 24, 2009
Date

GO AND NO-GO CRITERIA FOR VULCAN PROGRAM PHASE II

In order for the Government to evaluate the effectiveness of proposed solutions in achieving the stated program objectives, Go and No-Go criteria have been established to measure whether program objectives have been met. These Go and No-Go criteria along with Phase II proposal content will serve as the basis for determining whether satisfactory progress is being made to warrant continued performance into the next phase. As the design of the Vulcan engine and its subsystems mature, additional quantifiable metrics will be defined for the follow-on phases.

The Go and No-Go requirements for Phase II and all follow-on phases shall be based upon meeting the non-tradable requirements, listed below, at the Vulcan engine system level. The way in which these criteria must be met will have increasing fidelity as the design matures.

PHASE II GO/NO GO CRITERIA

- Final Phase IV Demonstration System Design meets the demonstration objectives and required performance curves in Figure 1 and 2 by simulation or analysis.
- Final CTDP identifies all Phase II-IV risk reduction activities and includes quantifiable success metrics for each test/demonstration
- Initial Vulcan engine performance model that can be used to generate engine performance adequate to meet the performance objectives.

NON-TRADABLE REQUIREMENTS FOR THE VULCAN SYSTEM

- A CVC engine(s) will be developed as an element of the Vulcan engine
- An existing production Turbine Engine will be another element of the Vulcan engine
  - Must use an existing, production engine from the following list: the F100-229, F110-129, F119 or F414. A Government provided, General State-of-the-Art Generic Engine Description may be used.
- Notional uninstalled thrust for the hypersonic vehicle is to be provided by one or more Vulcan engines and must be greater than the values outlined in Figure 1
- Notional vehicle flight path to be met or exceeded on a trajectory to Mach 4 is outlined in Figure 2
- CVC engine must be able to operate on fuel qualified for the turbine engine and must at least be capable of throttling between half and full power
- Design must include a Turbine Engine cocooning architecture and restart capability
- Full scale Vulcan engine must be capable of:
  - Demonstrating in three modes with continuous operation between Mach 0 to 4+: Turbine only, Turbine & CVC engine, and CVC engine only
  - Demonstrating an efficient combined inlet architecture
  - Demonstrating an efficient combined nozzle architecture

Mach Number	Vulcan Uninstalled Thrust (lbs)	Turbine Uninstalled Thrust (lbs)	CVC Uninstalled Thrust (lbs)
0	80,000	80,000	-
1.5	90,000	80,000	10,000
2.0	70,000	60,000	10,000
3.0	50,000	-	50,000
4.0	50,000	-	50,000

Figure 1. Total Uninstalled Thrust Curve for Notional Hypersonic Vehicle

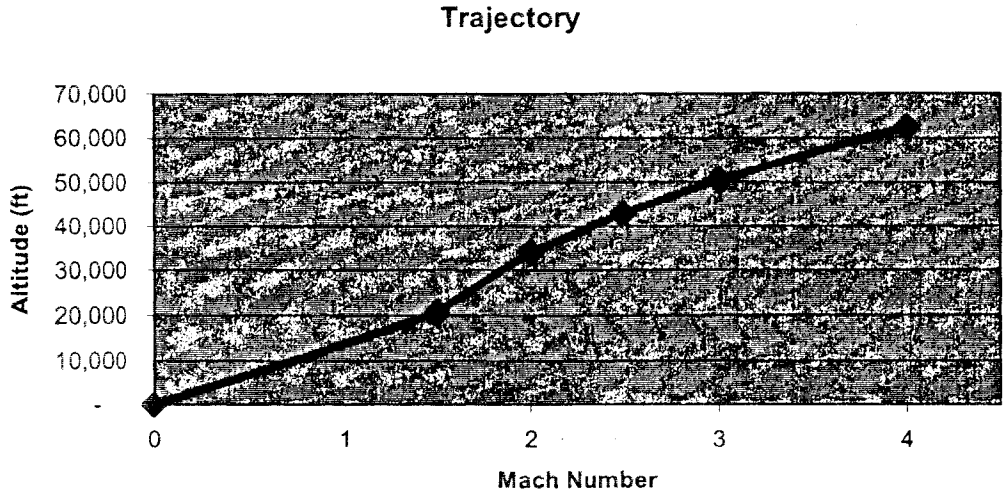

Figure 2. Flight Trajectory of Notional Vehicle to maintain (Q = 1,500 lb/ft^2)

~ End ~

DD FORM 254

PAGES 64 – 67

WITHHELD IN TOTAL

FOIA EXEMPTION (b)(2)

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
3701 NORTH FAIRFAX DRIVE
ARLINGTON, VA 22203-1714

LibertyWorks
Rolls-Royce North American Technologies, Inc.
Attn: Ms. Elaine Golden
2001 S Tibbs Ave.
Indianapolis, IN 46241

Reference: The LibertyWorks "Vulcan" Proposal dated February 5, 2009

Subject: **AUTHORIZATION TO INCUR PRE-AWARD COSTS**

The Defense Advanced Research Projects Agency (DARPA), Contracts Management Office (CMO), has received a valid and properly funded procurement request, in support of performance of the referenced proposal. DARPA anticipates awarding a contract (cost-plus-fixed-fee) to LibertyWorks (Rolls-Royce North American Technologies, Inc.) for this effort.

Since the DARPA Contracting Officer has determined that incurrence of costs prior to the effective date of the anticipated contract is necessary to ensure compliance with the proposed schedule, the Government and the Contractor agree as follows:

FIRST: In the event a contract is awarded, pre-award costs, not to exceed $500,000 shall be allowable under the Contract, provided that the individual costs therein shall be:

(a) otherwise allowable, reasonable, and allocable;
(b) incurred during the period March 5, 2009 through May 4, 2009; and,
(c) incurred specifically and exclusively to accomplish the effort described in the referenced proposal.

SECOND: Contract specifications and price shall be agreed to by the earlier of:

(a) May 4, 2009; or
(b) the date on which the amount of funds obligated, committed or expended under this Advance Agreement is equal to no more than $500,000.

THIRD AND FINALLY: It is the intention of the Government to award a contract to the Contractor, subject to final agreement on contract terms, specifications and price, which contract shall incorporate this Advance Agreement. It is understood and agreed by both parties that this Agreement concerns the treatment of pre-award costs in the event of award of a contract. This Agreement does not require the Contractor to incur

any such costs, and any costs incurred are at the risk of the Contractor, pending the award of a contract.

For the Contractor:

Elaine T. Golden
Senior Contracts Manager

5 March 2009
Date

For the Government:

(b)(6)

Christopher L. Ghista
Contracting Officer

3/5/09
Date

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
U	1 | 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
P00001	08-Jul-2009	Y144/00	

6. ISSUED BY CODE HR0011

DARPA
CMO
ATTN: CHRISTOPHER GLISTA
3701 N. FAIRFAX DR.
ARLINGTON VA 22203

7. ADMINISTERED BY (If other than item 6) CODE S1504A

DCMA AIRCRAFT PROPULSION OPERATIONS
ROLLS ROYCE CORPORATION
2001 SOUTH TIBBS AVENUE
INDIANAPOLIS IN 46241-4812

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

ROLLS ROYCE NORTH AMERICAN TECHNOLOGIES,
2001-2059 S TIBBS AVE
INDIANAPOLIS IN 46241-4812

CODE 020N0 FACILITY CODE

	9A. AMENDMENT OF SOLICITATION NO.
	9B. DATED (SEE ITEM 11)
X	10A. MOD. OF CONTRACT/ORDER NO. HR0011-09-C-0053
X	10B. DATED (SEE ITEM 13) 24-Mar-2009

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 Offer ☐ is extended, ☐ is not extended.

Offer 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)

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

☐ 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.

X 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)

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

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

Modification Control Number: wsellers09896

See Summary of Changes

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) CHRIS GLISTA / TEL: 571-218-4405 EMAIL: christopher.glista@darpa.mil	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY (b)(6) (Signature of Contracting Officer)	16C. DATE SIGNED 08-Jul-2009

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

The purpose of this modification is to make revisions to Section H-9 - Consent to Subcontract per the Contractor's request emails dated June 22, 2009 and June 28, 2009. The revisions shall result in no additional cost to the Government. Accordingly, make the following revisions to the contract:

1. Provide consent for Teledyne Scientific & Imaging, LLC in the amount of $0
2. Provide consent for Northrop Grumman in the amount of $0

The revisions shall be incorporated as follows:

SECTION H - SPECIAL CONTRACT REQUIREMENTS

The following have been modified (shown in bold italics):

H-10 Consent to Subcontract

(a) Pursuant to the clause of the General Provisions entitled "Subcontracts (JUN 2007)," FAR 52.244-2(j), the Contracting Officer hereby consents to the placement of subcontracts with the following firms at the ceiling amounts specified:

NAME OF SUBCONTRACTOR	AMOUNT
(b)(4)	

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use or number of subcontractors from the level established in subparagraph (a) *.

* The Contractor may deviate from the aggregate "Total Amount" shown above by (b)(4) without the prior written approval of the Contracting Officer. Any such deviation shall result in no increase to the Total Estimated Cost-Plus-Fixed-Fee shown in Section B.

(end of clause)

(End of Summary of Changes)