

OMB APPROVAL # 2700-0042

AWARD/CONTRACT	1. THIS CONTRACT IS A RATED ORDER UNDER DFAS (15 CFR 582)	RATING DO-A1	PAGE OF PAGE(S) 1 50
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2. CONTRACT NO. (Pres. Insc. Mark) NO. NAS1-20341	3. EFFECTIVE DATE 06/04/1996	4. REQUISITION/PURCHASE REQUEST/PROJECT NO. GKC.1235
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5. ISSUED BY: National Aeronautics and Space Administration Langley Research Center Hampton, VA 23681-0001	6. ADMINISTERED BY (If other than Item 5) Delegation Being Made Via NASA Form 1430 Criticality Designator C
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7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, state and ZIP code) Boeing Defense and Space Group Research and Technology P. O. Box 3999 Seattle, WA 98124	8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)
	9. DISCOUNT FOR PROMPT PAYMENT
	10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN: Section G

11. SHIP TO/MARK FOR See Exhibit A, Page 31.	12. PAYMENT WILL BE MADE BY: Financial Management Division, M/S 175 NASA, Langley Research Center Hampton, VA 23681-0001
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13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304(c) () <input type="checkbox"/> 41 U.S.C. 253(c) ()	14. ACCOUNTING AND APPROPRIATION DATA PR: GKC.1235; JO: R20911; \$60,000 (Complete) (T1)
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16A. ITEM NO.	16B. SUPPLIES/SERVICES	16C. QTY	16D. UNIT	16E. UNIT PRICE	16F. AMOUNT
	Aircraft and Spacecraft Guidance and Control Technology Research			Est. Cost	\$10,115,000
16G. TOTAL AMOUNT OF CONTRACT					\$10,115,000

N	SEC.	DESCRIPTION	PAGE(S)	N	SEC.	DESCRIPTION	PAGE(S)
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X	C	DESCRIPTIONS/SPECS./WORK STATEMENTS	2	X	J	LIST OF ATTACHMENTS	28
X	D	PACKAGING AND MARKING	5	PART IV - REPRESENTATIONS AND INSTRUCTIONS			
X	E	INSPECTION AND ACCEPTANCE	5		K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
X	F	DELIVERIES OR PERFORMANCE	6		L	INSTR. COND. AND NOTICES TO OFFERORS	
X	G	CONTRACT ADMINISTRATION DATA	6		M	EVALUATION FACTORS FOR AWARD	
X	H	SPECIAL CONTRACT REQUIREMENTS	9				

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. <input type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ 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. <input type="checkbox"/> 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.
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19A. NAME AND TITLE OF SIGNER (Type or print) W. N. Morton, Contracts Manager Research and Technology	20A. NAME OF CONTRACTING OFFICER MARY JANE YEAGER
19B. NAME OF CONTRACTOR BY W. N. Morton (Signature of person authorized to sign)	20B. UNITED STATES OF AMERICA BY Mary Jane Yeager (Signature of Contracting Officer)
19C. DATE SIGNED 6-4-96	20C. DATE SIGNED 6-7-96

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OMB APPROVAL # 3799-0042

AWARD/CONTRACT	1. THIS CONTRACT IS A RATED ORDER UNDER DFAS (15 CFR 560)	RATING DO-A1	PAGE OF PAGE(S) 1 50
2. CONTRACT NO. (Proc. Inst. Ident.) NO. NAS1-20341	3. EFFECTIVE DATE JUN 07 1996	4. REGISTRATION/PURCHASE REQUEST/PROJECT NO. GKC.1235	
5. ISSUED BY: CODE		6. ADMINISTERED BY (If other than Item 5) CODE	
National Aeronautics and Space Administration Langley Research Center Hampton, VA 23681-0001		Delegation Being Made Via NASA Form 1430 Criticality Designator C	

7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, state and ZIP code) Boeing Defense and Space Group Research and Technology P. O. Box 3999 Seattle, WA 98124	8. DELIVERY <input type="checkbox"/> FOB ORIGIN <input checked="" type="checkbox"/> OTHER (See below)
	9. DISCOUNT FOR PROMPT PAYMENT
	10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN: <input type="checkbox"/> ITEM Section G

11. SHIP TO/MARK FOR CODE See Exhibit A, Page 51.	FACILITY CODE	12. PAYMENT WILL BE MADE BY: CODE Financial Management Division, M/S 175 NASA, Langley Research Center Hampton, VA 23681-0001
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17. <input type="checkbox"/> CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ 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. <input type="checkbox"/> 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.
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19A. NAME AND TITLE OF SIGNER (Type or print) W. N. Morton, Contracts Manager Research and Technology	20A. NAME OF CONTRACTING OFFICER MARY JANE YEAGER
19B. NAME OF CONTRACTOR BY <i>W. N. Morton</i> (Signature of person authorized to sign)	19C. DATE SIGNED 6-4-96
20B. UNITED STATES OF AMERICA BY <i>Mary Jane Yeager</i> (Signature of Contracting Officer)	20C. DATE SIGNED 6-7-96

PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTSB.1 SUPPLIES AND/OR SERVICES TO BE FURNISHED (NASA 18-52.210-72)
(DEC 1988)

The Contractor shall provide all resources (except as may be expressly stated in this contract as furnished by the Government) necessary to furnish the required supplies and/or services in accordance with the Description/Specifications/Work Statement in Section C.

B.2 ESTIMATED COST (NASA 18-52.216-81) (DEC 1988)

The total estimated cost for complete performance of this contract is \$10,115,000. See FAR clause 52.216-11, Cost Contract--No Fee, of this contract.

B.3 CONTRACT FUNDING (NASA 18-52.232-81) (JUN 1990)

For purposes of payment of cost in accordance with the limitation of funds clause, the total amount allotted by the Government to this contract is \$60,000. This allotment is for the performance of work in accordance with the limitations and completion dates as set forth in task assignments authorized by the Contracting Officer.

B.4 ADMINISTRATION OF CONTRACT FUNDING (LaRC 52.232-113) (JUL 1993)

A. The Contractor agrees that all future incremental funding shall be accomplished by Administrative Change Modification and that the funding procedure shall in no way change the Contractor's notification obligations as set forth in the "Limitation of Funds" clause.

B. In addition to the requirements of the "Limitation of Funds" clause, the Contractor shall notify the Contracting Officer in writing if, at any time, the Contractor has reason to believe that the total cost to the Government for the complete performance of this contract will be greater or substantially less than the then total estimated cost of the contract. Such notification shall give a revised estimate of the total cost for the performance of this contract.

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 STATEMENT OF WORK

The Contractor shall perform specifically defined task assignments authorized by the Government within those areas broadly described in the following Statement of Work entitled, "Aircraft and Spacecraft Guidance and Control Technology."

1.0 INTRODUCTION

The demand for technology development by NASA for aircraft, spacecraft, and transatmospheric vehicles has increased markedly in the past few years. The revitalization of the commercial aircraft industry, the burgeoning space

commercialization, and the new focusing toward more efficient ways of doing business are prompting the need for new technologies. Such issues as improved throughput at the nation's airports, minimization of hazards for the traveling public, all weather capability for aircraft operations, and application of new materials and designs to reduce operational costs, place severe demands on sensing and detection technologies, system modeling, control and guidance concepts, designs and implementations.

2.0 SCOPE

The scope of this contract is to develop technology to address issues attendant to system modeling (rigid and flexible body dynamics) and optimization, flight management, handling qualities, aviation safety, as well as guidance and control of aircraft, spacecraft, and transatmospheric vehicles. Both analytical and experimental investigations will be conducted and advances in each technology area will be assessed for effects on overall performance and acceptance by the user communities. A prime objective will be to exploit new theoretical concepts in developing methodologies which are then validated through analyses as well as laboratory experiments and flight tests, where applicable.

3.0 CONTRACTOR'S TASKS

The Contractor shall perform specific tasks as authorized by the Contracting Officer associated with system modeling, and guidance and control of aircraft and spacecraft within the following areas:

A. Aircraft Guidance and Control

1. Multidisciplinary Analysis and Design for Subsonic, Supersonic and Hypersonic Aircraft

Develop mathematical models of subsonic, supersonic and hypersonic aircraft configurations that capture the significant dynamics of rigid and flexible aircraft operating over a range of flight conditions ranging from terminal operations to hypersonic cruise and reentry. Features that may be required include reversible actuators, compliant back structure, aero-propulsive interactions, unsteady aerodynamics, and nonlinear effects. Task may include development of high fidelity models with aeroelastic effects and aero-propulsive interactions; simultaneous selection of mission profiles, control laws, and vehicle configuration to optimize performance or operability; optimal and robust controller definition, selection, and implementation; evolution of methods for the integration of Artificial Intelligence (AI) and artificial neural net technologies into the design and implementation of advanced flight control systems; investigation of multiple control effectors, such as engine flow-path controls; and evaluation of the impact of control systems on flying qualities. The Contractor may be required to develop or extend modeling methodologies; plant/controller order reduction techniques; nonconservative robustness measures for multi-input/multi-output systems; nonlinear controller design; controller reconfiguration after element failure; adaptive control; operation on the back side of the power curve; flying qualities assessments; and quantification of benefits resulting from application of new technologies.

2. High Performance Aircraft Guidance and Control

Develop and evaluate flight guidance and control design methodologies and apply these methodologies to the design of a Integrated Flight/Propulsion Controls (IFPC) for advanced high performance aircraft with nonconventional control effectors. Investigations may include use of axisymmetric thrust-vectoring; development of IFPC for tailless or reduced-tail aircraft; development of detailed nonlinear integrated aerodynamic and propulsion models; development of sensor models and state estimation techniques; adaptive and/or reconfigurable controllers; evaluation of the impact of control laws on flying/handling qualities; guidance schemes for optimizing energy management, survivability, and lethality during characteristic missions and engagements; and quantification of benefits resulting from application of new technologies.

B. Spacecraft Guidance and Control/Controls-Structures Integration (CSI)

1. CSI Benefits to Spacecraft Experiments

Conduct analytical and tradeoff studies to quantify the disturbance environment to be experienced by experiments onboard spacecraft, such as Space Station, and to identify CSI technology layers which will improve the performance of these onboard experiments. Tasks may include development of a detailed mathematical dynamics model of the spacecraft and all its elements; models of the disturbance environment aboard the spacecraft; performance requirements for various experiments requiring low vibration levels and/or precision pointing; definition of the impact of the disturbance levels on the experiments performance; recommendation of the appropriate CSI technology to alleviate performance issues; and quantification of performance benefits resulting from employment of selected CSI technology.

2. Dynamics and Control of Multibody Systems

Develop high fidelity models of the dynamics of multibody systems, such as represented by flexible platforms with articulated payloads and loosely-coupled, independently controlled vehicles. These models will be used for designs of state-of-the-art optimal and robust controllers, identification and quantification of disturbance environments, and determination of needed technologies to resolve the control issues attendant to the optimum performance of such orbiting systems. Tasks may include literature reviews of multibody systems control; modeling of system nonlinear dynamics; modeling of disturbance environments onboard the vehicles; design of optimal and robust controllers to ensure performance; design of attitude and vibration suppression systems; jitter analysis and control implementation; development of appropriate technologies to satisfy mission requirements; performance evaluation; and quantification of benefits resulting from application of new technologies.

3. Pointing and Isolation Systems

Investigate the use of active and passive systems for high accuracy pointing and isolation. Tasks may include a review of current pointing and isolation technology and identification of user needs for future spacecraft applications; investigations of magnetic suspension (large-gap and small-gap) for

isolation of microgravity payloads and for source isolation of vibrating equipment; system level dynamic modeling and controller designs for these inherently nonlinear systems; hardware verification of concepts developed; and quantification of benefits resulting from the application of new technology.

4. Space Vehicles Guidance

Develop and evaluate algorithms for optimal and suboptimal guidance of space vehicles operating in and out of the atmosphere. Potential areas to be included are launch, entry, rendezvous and docking, and interplanetary transfer. Consideration shall be given to guidance for both single and multistage transportation vehicles, in the presence of atmospheric, measurement, and performance uncertainties. Tasks may include examination of the applicability of Autonomous Rendezvous and Capture (AR&C) to establish the viability of the concept for resupplying manned spacecraft, and to permit the servicing, repair, and retrieval of Low Earth Orbit (LEO) satellites to reduce program life cycle costs; investigation of the utilization of GPS (Global Positioning System) for targeting, navigation, attitude determination, and ranging; interaction between cooperative but independent control systems; autonomous operations with noncooperative targets; orbital mechanics for rendezvous; compliant grappling fixtures; machine vision for targeting; and quantification of benefits resulting from the application of new technologies.

SECTION D - PACKAGING AND MARKING

D.1 PACKAGING AND MARKING (ALTERNATE I) (NASA 18-52.210-75) (SEP 1990)

(a) The Contractor shall preserve, pack, and mark for shipment all items deliverable under this contract in accordance with good commercial practices and adequate to ensure both acceptance by common carrier and safe transportation at the most economical rate(s).

(b) The Contractor's markings on shipping containers shall be clearly legible from a distance of 36 inches. The Contractor may mark by stencil, rubber stamp, or lacquer over a coated gummed label.

(c) The Contractor shall place identical requirements on all subcontracts.

SECTION E - INSPECTION AND ACCEPTANCE

E.1 FINAL INSPECTION AND ACCEPTANCE (LaRC 52.246-94) (OCT 1992)

Final inspection and acceptance of all items specified for delivery under this contract shall be accomplished by the Contracting Officer or his duly authorized representative as specified in task assignments.

SECTION F - DELIVERIES OR PERFORMANCE

F.1 PERIOD OF PERFORMANCE - TASK ASSIGNMENTS (LaRC 52.212-112) (JUL 1989)

A. The period for issuance of task assignments is 60 months from the effective date of this contract.

B. Any task assignments issued prior to the expiration of the period for issuance of task assignments shall be completed, subject to the limitations specified in B.2; provided that the Contractor will not be required to perform any work beyond 12 months after the period for issuing task assignments.

F.2 PLACE OF PERFORMANCE

The place of performance shall be the Contractor's facility located in Kent, Washington, or other sites as may be designated in task assignments.

F.3 PRESENTATIONS

The Contractor shall make oral presentation(s) as specified in task assignments. The specific date of the presentation(s) shall be mutually selected by the Contracting Officer Technical Representative (COTR) and the Contractor.

The presentation(s) shall include a review of all work accomplished during task performance. The presentation(s) shall also include a brief summary of reportable items under the Section I clause entitled, "New Technology or Patent Rights - Retention by the Contractor."

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE (NASA 18-52.227-72) (APR 1984)

(a) For purposes of administration of the clause of this contract entitled "New Technology" or "Patent Rights - Retention by the Contractor (Short Form)", whichever is included, the following named representatives are hereby designated by the Contracting Officer to administer such clause:

<u>Title</u>	<u>Office Code</u>	<u>Address (including zip code)</u>
New Technology Representative	200	NASA, Langley Research Center Hampton, VA 23681-0001
Patent Representative	143	NASA, Langley Research Center Hampton, VA 23681-0001

(b) Reports of reportable items, and disclosure of subject inventions, interim reports, final reports, utilization reports, and other reports required by the clause, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative unless transmitted in response to correspondence or request from the Patent Representative. Inquiries or requests regarding disposition of rights, election of rights, or related matters should be

directed to the Patent Representative. This clause shall be included in any subcontract hereunder requiring a "New Technology" clause or "Patent Rights - Retention by the Contractor (Short Form)" clause, unless otherwise authorized or directed by the Contracting Officer. The respective responsibilities and authorities of the above-named representatives are set forth in 18-27.375-3 of the NASA FAR Supplement.

G.2 PAYMENTS AND INVOICES

A. Proper invoices, as determined under the Section I clause entitled Prompt Payment, shall be addressed to the designated payment office shown in Block 12 on page 1 of this contract. The cost invoices, with the two copies of the NASA Form 533 designated to be delivered to Cost Accounting in Exhibit A, Contract Documentation Requirements, shall be submitted through the delegated Government Audit Agency, which shall be the designated billing office with a copy to the delegated Administrative Contracting Officer.

B. Payments of cost shall be made in monthly installments.

C. Public vouchers for payment of cost shall include a reference to this contract NAS1-20341 and your Taxpayer Identification Number.

D. The Contractor shall prepare vouchers as follows:

1. One original Standard Form (SF) 1034, SF 1035, or equivalent Contractor's attachment.

2. Seven copies of SF1034A, SF1035A, or equivalent Contractor's attachment.

3. The Contractor shall mark SF 1034A copies 1, 2, 3, and 4, and such other copies as may be directed by the Contracting Officer by insertion in the memorandum block the names and addresses as follows:

- (i) Copy 1 NASA Contracting officer;
- (ii) Copy 2 Auditor;
- (iii) Copy 3 Contractor;
- (iv) Copy 4 Contract Administration office; and
- (v) Copy 5 Contracting Officer Technical Representative (COTR)

G.3 TASK ASSIGNMENTS

A. The work to be performed within the areas outlined in Section C, Description/Specifications/Work Statement, will be more specifically defined and controlled by means of written task assignments, issued solely by the Contracting Officer, containing the following information:

- 1. Task assignment number and date
- 2. Description of work and/or deliverables
- 3. Total cost limitation

4. Required completion date and/or delivery schedule
5. Appropriate special instructions or information

B. The Contractor shall submit a budget within 30 days after receipt of each task assignment issued.

C. A copy of each task assignment shall be furnished to the Contractor. To acknowledge receipt, the Contractor shall sign the Acknowledgment enclosed and return it to the Contracting Officer.

D. The Contracting Officer may modify task assignments in the same means that they are issued.

E. Contractor costs for task planning shall be inclusive of the authorized costs for each task assignment.

G.4 TASK LIMITATIONS

Each task assignment shall specify a total cost limitation. Notwithstanding the Limitation of Funds' clause, the Contractor shall not exceed the authorized cost set forth in each task assignment. If it becomes necessary to increase the cost limitation, the Contracting Officer shall do so in writing via a task assignment modification.

G.5 CONTRACT CLOSEOUT (LaRC 52.242-90) (JUN 1988)

A. Reassignment--After receipt, inspection, and acceptance by the Government of all required articles and/or services, and resolution of any pending issues raised during the Period of Performance, this contract will be reassigned to the NASA Langley Research Center Contracting Officer for Contract Closeout. All transactions subsequent to the physical completion of the contract should, therefore, be addressed to the said Contracting Officer at NASA Langley Research Center, Mail Stop 126, who may be reached by telephone at (804) 864-7765.

B. "Quick Closeout"--Paragraph (f) of the Allowable Cost and Payment clause of this contract addresses the "Quick Closeout Procedure" delineated by Subpart 42.7 of the Federal Acquisition Regulation (FAR). It should be understood that the said procedure applies to the settlement of indirect costs for a specific contract in advance of the determination of final indirect cost rates when the amount of unsettled indirect cost to be allocated to the contract is relatively insignificant. Therefore, the "Quick Closeout" procedure does not preclude the provisions of paragraph (d) of the Allowable Cost and Payment clause nor does it constitute a waiver of final audit of the Contractor's Completion Voucher.

C. Completion Voucher Submittal--Notwithstanding the provisions of the Allowable Cost and Payment clause, as soon as practicable after settlement of the Contractor's indirect cost rates applicable to performance of the contract, the Contractor shall submit a Completion Voucher as required by the aforesaid clause. The Completion Voucher shall be supported by a cumulative claim and reconciliation statement and executed NASA Forms 778, Contractor's Release, and 780, Contractor's Assignment of Refunds, Rebates, Credits, and Other Amounts. Unless directed otherwise by the Contracting Officer for Contract Closeout, the Contractor shall

forward the said Completion Voucher directly to the cognizant Government Agency to which audit functions under the contract have been delegated.

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 RIGHTS TO PROPOSAL DATA (TECHNICAL) (FAR 52.227-23) (JUN 1987)

Except for data contained on pages iii - viii; pages 1 - 75; and pages A1 - A36, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data - General" clause contained in this contract) in and to the technical data contained in the proposal dated June 3, 1994, upon which this contract is based.

H.2 INCORPORATION OF SECTION K OF THE PROPOSAL BY REFERENCE (LaRC 52.215-107) (MAR 1989)

Pursuant to FAR 15.406-1(b), the completed Section K of the proposal dated April 12, 1996, is hereby incorporated herein by reference.

H.3 ADVANCE APPROVAL FOR RELEASE OF TECHNICAL INFORMATION (LaRC 52.227-92) (OCT 1993)

The Contractor shall not release technical information based on or containing data first produced in the performance of this contract and describing the work performed under this contract unless prior written approval is given by NASA. The Contractor shall submit technical information regarding the contract effort, such as journal articles, meeting papers, and technical documents, to the Contracting Officer Technical Representative (COTR) for review and concurrence with subsequent approval by the cognizant NASA Headquarters Program Office prior to establishing claim to copyright, publication, presentation, or release to others. The Contractor may proceed upon receipt of written concurrence by the COTR as though approval also had been received from the cognizant NASA Headquarters Program Office, unless directed otherwise in the COTR concurrence letter.

H.4 SUBCONTRACTING PLAN

The approved Contractor plan for subcontracting with small business and small disadvantaged business concerns is attached hereto as Exhibit C and is hereby made a part of this contract.

H.5 FIRMR APPLICABILITY (201-39.5202-1) (OCT 90 FIRMR)

This solicitation/contract requires the use or delivery of Federal information processing resources, but the Agency has determined that FIRMR part 201-39 does not apply based on the exception set forth in 201-39.101-3(b)(4).

H.6 SECURITY PROGRAM/FOREIGN NATIONAL EMPLOYEE INVESTIGATIVE REQUIREMENTS (LaRC 52.204-91) (NOV 1991)

Prior to reporting to Langley Research Center (LaRC) to perform under a contract or grant, each Foreign National shall have approval for access to LaRC

facilities from NASA Headquarters, International Relations Division (Code XID). A copy of the access authorization request shall be provided to the LaRC Chief of Security. Additionally, an investigation by the Government shall be completed on each Foreign National contractor prior to reporting to LaRC to perform under a contract or grant. A properly executed "Name Check Request" (NASA Form 531) and a completed "applicant" fingerprint card shall be submitted to the LaRC Security Office, Mail Stop 182, for each Foreign National contractor at least 75 days prior to the estimated entry on duty date. The NF 531 and fingerprint card may be obtained from the LaRC Security Office. If the access approval is obtained from NASA Headquarters prior to completion of the investigation, and the Contracting Officer requires a Foreign National to work on LaRC, an escort request may be considered by the LaRC Chief of Security.

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

I.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE:

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
52.202-1	Definitions (OCT 1995)
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 (JUL 1995)
52.203-7	Anti-Kickback Procedures (JUL 1995)
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity (SEP 1990)
52.204-4	Printing/Copying Double-Sided on Recycled Paper (MAY 1995)
52.209-6	Protecting the Government's Interest when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (JUL 1995)
52.211-15	Defense Priority and Allocation Requirements (SEP 1990)
52.215-2	Audit and Records--Negotiation (OCT 1995)
52.215-22	Price Reduction for Defective Cost or Pricing Data (OCT 1995)
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52.215-27	Termination of Defined Benefit Pension Plans (MAR 1996)
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52.215-40	Notification of Ownership Changes (FEB 1995)
52.216-11	Cost Contract - No Fee (APR 1984)
52.219-8	Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns (OCT 1995)
52.219-9	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (OCT 1995)

52.219-16 Liquidated Damages - Subcontracting Plan (OCT 1995)
 52.222-1 Notice to the Government of Labor Disputes (APR 1984)
 52.222-3 Convict Labor (APR 1984)
 52.222-4 Contract Work Hours and Safety Standards Act - Overtime
 Compensation (JUL 1995)
 52.222-26 Equal Opportunity (APR 1984)
 52.222-28 Equal Opportunity Preaward Clearance of Subcontracts
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 52.222-35 Affirmative Action for Special Disabled and Vietnam Era
 Veterans (APR 1984)
 52.222-36 Affirmative Action for Handicapped Workers (APR 1984)
 52.222-37 Employment Reports on Special Disabled Veterans and
 Veterans of the Vietnam Era (JAN 1988)
 52.223-2 Clean Air and Water (APR 1984)
 52.223-6 Drug-Free Workplace (JUL 1990)
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 52.225-11 Restrictions on Certain Foreign Purchases (MAY 1992)
 52.227-1 Authorization and Consent (JUL 1995) Alternate I (APR 1984)
 52.227-2 Notice and Assistance Regarding Patent and Copyright
 Infringement (APR 1984)
 52.227-14 Rights in Data - General (JUN 1987) -- as modified by NASA
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 52.227-16 Additional Data Requirements (JUN 1987)
 52.228-7 Insurance - Liability to Third Persons (MAR 1996)
 52.230-2 Cost Accounting Standards (AUG 1992)
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 52.232-9 Limitation on Withholding of Payments (APR 1984)
 52.232-17 Interest (JAN 1991)
 52.232-22 Limitation of Funds (APR 1984)
 52.232-23 Assignment of Claims (JAN 1986)
 52.232-28 Electronic Funds Transfer Payment Methods (APR 1989)--as
 modified by NASA FAR Supplement 18-32.908
 52.233-1 Disputes (OCT 1995) Alternate I (DEC 1991)
 52.233-3 Protest After Award (OCT 1995) Alternate I (JUN 1985)
 52.242-1 Notice of Intent to Disallow Costs (APR 1984)
 52.242-2 Production Progress Reports (APR 1991)
 52.242-3 Penalties for Unallowable Costs (OCT 1995)
 52.242-15 Stop-Work Order (AUG 1989) Alternate I (APR 1984)
 52.243-2 Changes - Cost-Reimbursement (AUG 1987) Alternate V (APR 1984)
 52.244-2 Subcontracts (Cost-Reimbursement and Letter Contracts)
 (MAR 1996) Alternate I (JUL 1995)
 52.244-5 Competition in Subcontracting (JAN 1996)
 52.245-5 Government Property (Cost-Reimbursement, Time-and-Material,
 or Labor-Hour Contracts) (JAN 1986)
 52.246-9 Inspection of Research and Development (Short Form) (APR 1984)
 52.246-23 Limitation of Liability (APR 1984)
 52.249-6 Termination (Cost-Reimbursement) (MAY 1986)
 52.249-14 Excusable Delays (APR 1984)
 52.253-1 Computer Generated Forms (JAN 1991)

NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
18-52.212-70	Notice of Delay (DEC 1988)
18-52.216-89	Allowable Cost and Payment (APR 1994)
18-52.219-74	Use of Rural Area Small Businesses (SEP 1990)
18-52.219-75	Small Business and Small Disadvantaged Business Subcontracting Reporting (OCT 1995)
18-52.219-76	NASA Small Disadvantaged Business Goal (JUL 1991)
18-52.227-70	New Technology (JUL 1995)
18-52.235-70	Center for AeroSpace Information (NOV 1992)
18-52.242-72	Observance of Legal Holidays (AUG 1992)
18-52.242-73	NASA Contractor Financial Management Reporting (APR 1994)
18-52.244-70	Geographic Participation in the Aerospace Program (APR 1985)
18-52.245-70	Acquisition of Centrally Reportable Equipment (MAR 1989)

I.2 CLAUSES IN FULL TEXT

The clauses listed below follow in full text:

52.203-9	Requirement for Certificate of Procurement Integrity - Modification (SEP 1995)
52.203-12	Limitation on Payments to Influence Certain Federal Transactions (JAN 1990)
52.216-7	Allowable Cost and Payment (JUL 1991)
52.222-2	Payment for Overtime Premiums (JUL 1990)
52.232-25	Prompt Payment (MAR 1994)
52.242-13	Bankruptcy (JUL 1995)
52.252-6	Authorized Deviations in Clauses (APR 1984)
18-52.215-84	Ombudsman (OCT 1995)
18-52.223-70	Safety and Health (SEP 1993)
18-52.245-73	Financial Reporting of Government-Owned/Contractor-Held Property (JUL 1994) Alternate I (MAR 1989)

I.3 REQUIREMENT FOR CERTIFICATE OF PROCUREMENT INTEGRITY--MODIFICATION
(FAR 52.203-9) (SEP 1995)

(a) Definitions. The definitions set forth in FAR 3.104-4 are hereby incorporated in this clause.

(b) The Contractor agrees that it will execute the certification set forth in paragraph (c) of this clause when requested by the contracting officer in connection with the execution of any modification of this contract.

(c) Certification. As required in paragraph (b) of this clause, the officer or employee responsible for the modification proposal shall execute the following certification. The certification in paragraph (c)(2) of this clause is not required for a modification which procures commercial items.

CERTIFICATE OF PROCUREMENT INTEGRITY--MODIFICATION (SEP 1995)

(1) I, _____
[Name of certifier]

am the officer or employee responsible for the preparation of this modification proposal and hereby certify that, to the best of my knowledge and belief, with the exception of any information described in this certification, I have no information concerning a violation or possible violation of subsections 27(a), (b), (d), or (f) of the Office of Federal Procurement Policy Act, as amended* (41 U.S.C. 423), (hereinafter referred to as "the Act"), as implemented in the FAR, occurring during the conduct of this procurement

(contract and modification number).

(2) As required by subsection 27(e)(1)(B) of the Act, I further certify that, to the best of my knowledge and belief, each officer, employee, agent, representative, and consultant of _____

[Name of Offeror]

who has participated personally and substantially in the preparation or submission of this proposal has certified that he or she is familiar with, and will comply with, the requirements of subsection 27(a) of the Act, as implemented in the FAR, and will report immediately to me any information concerning a violation or possible violation of subsections 27(a), (b), (d), or (f) of the Act, as implemented in the FAR, pertaining to this procurement.

(3) Violations or possible violations: (Continue on plain bond paper if necessary and label Certificate of Procurement Integrity--Modification (Continuation Sheet), ENTER NONE IF NONE EXIST) _____

[Signature of the officer or employee responsible for the modification proposal and date]

[Typed name of the officer or employee responsible for the modification proposal]

*Subsections 27(a), (b), and (d) are effective on December 1, 1990.
Subsection 27(f) is effective on June 1, 1991.

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER TITLE 18, UNITED STATES CODE, SECTION 1001.

(End of certification)

(d) In making the certification in paragraph (2) of the certificate, the officer or employee of the competing Contractor responsible for the offer or bid, may rely upon a one-time certification from each individual required to submit a certification to the competing Contractor, supplemented by periodic training. These certifications shall be obtained at the earliest possible date after an individual required to certify begins employment or association with the Contractor. If a Contractor decides to rely on a certification executed prior to suspension of Section 27 (i.e., prior to December 1, 1989), the Contractor shall ensure that an individual who has so certified is notified that Section 27 has been reinstated. These certifications shall be maintained by the Contractor for a period of 6 years from the date a certifying employee's employment with the company ends or, for an agency, representative, or consultant, 6 years from the date such individual ceases to act on behalf of the Contractor.

(e) The certification required by paragraph (c) of this clause is a material representation of fact upon which reliance will be placed in executing this modification.

I.4 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (FAR 52.203-12) (JAN 1990)

(a) Definitions.

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

- (1) The awarding of any Federal contract.
- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

- (1) An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment.
- (2) A member of the uniformed services, as defined in subsection 101(3), title 37, United States Code.
- (3) A special Government employee, as defined in section 202, title 18, United States Code.

(4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, title 5, United States Code appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within one year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action -

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of -

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable.

Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(iii) Disclosure.

(A) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(B) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes -

(1) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(2) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(3) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(C) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding \$100,000 under the Federal contract.

(D) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(iv) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(v) Penalties.

(A) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(B) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(vi) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any of the provisions.

1.5 ALLOWABLE COST AND PAYMENT (FAR 52.216-7) (JUL 1991)

(a) Invoicing. The Government shall 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 Subpart 31.2 of the Federal Acquisition Regulation (FAR) 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.

(b) Reimbursing costs. (1) For the purpose of reimbursing allowable costs (except as provided in subparagraph (2) below, 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) Materials issued from the Contractor's inventory and placed in the production process for use on the contract;

(B) Direct labor;

(C) Direct travel;

(D) Other direct in-house costs; and

(E) 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 progress payments that have been paid to the Contractor's subcontractors under similar cost standards.

(2) Contractor contributions to any pension or other postretirement benefit, profit-sharing, or employee stock ownership plan funds that are paid quarterly or more often may be included in indirect costs for payment purposes; provided, that the Contractor pays the contribution to the fund within 30 days after the close of the period covered. Payments made 30 days or more after the close of a period shall not be included until the Contractor actually makes the payment. Accrued

costs for such contributions that are paid less often than quarterly shall be excluded from indirect costs for payment purposes until the Contractor actually makes the payment.

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

(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 be paid more often than every 2 weeks and may invoice and be paid for recorded costs for items or services purchased directly for the contract, even though the concern has not yet paid for those items or services.

(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) The Contractor shall, within 90 days after the expiration of each of its fiscal years, or by a later date approved by the Contracting Officer, submit to the cognizant Contracting Officer responsible for negotiating its final indirect cost rates and, if required by agency procedures, to the cognizant audit activity proposed final indirect cost rates for that period and supporting cost data specifying the contract and/or subcontract to which the rates apply. The proposed rates shall be based on the Contractor's actual cost experience for that period. The appropriate Government representative and 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.

(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. When the Contractor and Contracting Officer agree, the quick-closeout procedures of Subpart 42.7 of the FAR may be used.

(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) The Contractor shall submit a completion invoice or voucher, designated as such, promptly upon completion of the work, but no later than one year (or longer, as the Contracting Officer may approve in writing) from the completion date. Upon approval of that invoice or voucher, 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.

I.6 PAYMENT FOR OVERTIME PREMIUMS (FAR 52.222-2) (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.

I.7 PROMPT PAYMENT (FAR 52.232-25) (MAR 1994)

Notwithstanding any other payment clause in this contract, the Government will make invoice payments and contract financing payments under the terms and conditions specified in this clause. Payment shall be considered as being made on the day a check is dated or an electronic funds transfer is made. Definitions of pertinent terms are set forth in 32.902. All days referred to in this clause are calendar days, unless otherwise specified.

(a) *Invoice Payments.*

(1) For purposes of this clause, "invoice payment" means a Government disbursement of monies to a Contractor under a contract or other authorization for supplies or services accepted by the Government. This includes payments for partial deliveries that have been accepted by the Government and final cost or fee payments where amounts owed have been settled between the Government and the Contractor.

(2) Except as indicated in subparagraph (a)(3) and paragraph (c) of this clause, the due date for making invoice payments by the designated payment office shall be the later of the following two events:

(i) The 30th day after the designated billing office has received a proper invoice from the Contractor.

(ii) The 30th day after Government acceptance of supplies delivered or services performed by the Contractor. On a final invoice where the payment amount is subject to contract settlement actions, acceptance shall be deemed to have occurred on the effective date of the contract settlement. However, if the designated billing office fails to annotate the invoice with the actual date of receipt, the invoice payment due date shall be deemed to be the 30th day after the date the Contractor's invoice is dated, provided a proper invoice is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(3) The due date on contracts for meat, meat food products, or fish; contracts for perishable agricultural commodities, contracts for dairy products, edible fats or oils, and food products prepared from edible fats or oils, and contracts not requiring submission of an invoice shall be as follows:

(i) The due date for meat and meat food products, as defined in Section 2(a)(3) of the Packers and Stockyard Act of 1921 (7 U.S.C. 182(3)) and further defined in Pub. L. 98-181 to include any edible fresh or frozen poultry meat, any perishable poultry meat food product, fresh eggs, and any perishable egg

product, will be as close as possible to, but not later than, the 7th day after product delivery.

(ii) The due date for fresh or frozen fish, as defined in Section 204(3) of the Fish and Seafood Promotion Act of 1986 (16 U.S.C. 4003(3)), will be as close as possible to, but not later than, the seventh day after product delivery.

(iii) The due date for perishable agricultural commodities, as defined in section 1(4) of the Perishable Agricultural Commodities Act of 1930 (7 U.S.C. 499a(44)), will be as close as possible to, but not later than, the 10th day after product delivery, unless another date is specified in the contract.

(iv) The due date for dairy products, as defined in section 111(e) of the Dairy Production Stabilization Act of 1983 (7 U.S.C. 4502(e)), edible fats or oils, and food products prepared from edible fats or oils, will be as close as possible to, but not later than, the 10th day after the date on which a proper invoice has been received.

(v) If the contract does not require submission of an invoice for payment (e.g., periodic lease payments), the due date will be as specified in the contract.

(4) An invoice is the Contractor's bill or written request for payment under the contract for supplies delivered or services performed. An invoice shall be prepared and submitted to the designated billing office specified in the contract. A proper invoice must include the items listed in subdivisions (a)(4)(i) through (a)(4)(viii) of this clause. If the invoice does not comply with these requirements, then the Contractor will be notified of the defect within 7 days after receipt of the invoice at the designated billing office (3 days for meat, meat food products, or fish, and 5 days for perishable agricultural commodities, edible fats or oils, and food products prepared from edible fats or oils). Untimely notification will be taken into account in the computation of any interest penalty owed the Contractor in the manner described in subparagraph (a)(6) of this clause.

(i) Name and address of the Contractor.

(ii) Invoice date.

(iii) Contract number or other authorization for supplies delivered or services performed (including order number and contract line item number).

(iv) Description, quantity, unit of measure, unit price, and extended price of supplies delivered or services performed.

(v) Shipping and payment terms (e.g., shipment number and date of shipment, prompt payment discount terms). Bill of lading number and weight of shipment will be shown for shipments on Government bills of lading.

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number and mailing address of person to be notified in event of a defective invoice.

(viii) Any other information or documentation required by other requirements of the contract (such as evidence of shipment).

(5) An interest penalty shall be paid automatically by the Government, without request from the Contractor, if payment is not made by the due date and the conditions listed in subdivisions (a)(5)(i) through (a)(5)(iii) of this clause are met, if applicable.

(i) A proper invoice was received by the designated billing office.

(ii) A receiving report or other Government documentation authorizing payment was processed and there was no disagreement over quantity, quality, or Contractor compliance with any contract term or condition.

(iii) In the case of a final invoice for any balance of funds due the Contractor for supplies delivered or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(6) The interest penalty shall be at the rate established by the Secretary of the Treasury under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) that is in effect on the day after the due date, except where the interest penalty is prescribed by other governmental authority. This rate is referred to as the "Renegotiation Board Interest Rate," and it is published in the *Federal Register* semiannually on or about January 1 and July 1. The interest penalty shall accrue daily on the invoice payment amount approved by the Government and be compounded in 30-day increments inclusive from the first day after the due date through the payment date. That is, interest accrued at the end of any 30-day period will be added to the approved invoice payment amount and be subject to interest penalties if not paid in the succeeding 30-day period. If the designated billing office failed to notify the Contractor of a defective invoice within the periods prescribed in paragraph (a)(4) of this clause, then the due date on the corrected invoice will be adjusted by subtracting the number of days taken beyond the prescribed notification of defects period. Any interest penalty owed the Contractor will be based on this adjusted due date. Adjustments will be made by the designated payment office for errors in calculating interest penalties, if requested by the Contractor.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor, Government acceptance shall be deemed to have occurred constructively on the 7th day (unless otherwise specified in this contract) after the Contractor delivered the supplies or performed the services in accordance with the terms and conditions of the contract, unless there is a disagreement over quantity, quality, or contractor compliance with a contract provision. In the event that actual acceptance occurs within the constructive acceptance period, the determination of an interest penalty shall be based on the actual date of acceptance. The constructive acceptance requirement does not, however, compel Government officials to accept supplies or services, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The following periods of time will not be included in the determination of an interest penalty:

(A) The period taken to notify the Contractor of defects in invoices submitted to the Government, but this may not exceed 7 days (3 days for meat, meat food products, or fish, and 5 days for perishable agricultural commodities, dairy products, edible fats or oils, and food products prepared from edible fats or oils).

(B) The period between the defects notice and resubmission of the corrected invoice by the Contractor.

(iii) Interest penalties will not continue to accrue after the filing of a claim for such penalties under the clause at 52.233-1, Disputes, or for more than 1 year. Interest penalties of less than \$1.00 need not be paid.

(iv) Interest penalties are not required on payment delays due to disagreement between the Government and Contractor over the payment amount or other issues involving contract compliance or on amounts temporarily withheld or retained in accordance with the terms of the contract. Claims involving disputes,

and any interest that may be payable, will be resolved in accordance with the clause at 52.233-1, Disputes.

(7) An interest penalty shall also be paid automatically by the designated payment office, without request from the Contractor, if a discount for prompt payment is taken improperly. The interest penalty will be calculated as described in subparagraph (a)(6) of this clause on the amount of discount taken for the period beginning with the first day after the end of the discount period through the date when the Contractor is paid.

(8) If this contract was awarded on or after October 1, 1989, a penalty amount, calculated in accordance with regulations issued by the Office of Management and Budget, shall be paid in addition to the interest penalty amount if the Contractor -

- (i) Is owed an interest penalty;
- (ii) Is not paid the interest penalty within 10 days after the date the invoice amount is paid; and
- (iii) Makes a written demand, not later than 40 days after the date the invoice amount is paid, that the agency pay such a penalty.

(b) *Contract Financing Payments.*

(1) For purposes of this clause, "contract financing payment" means a Government disbursement of monies to a Contractor under a contract clause or other authorization prior to acceptance of supplies or services by the Government. Contract financing payments include advance payments, progress payments based on cost under the clause at 52.232-16, Progress Payments, progress payments based on a percentage or stage of completion (32.102(e)(1)) other than those made under the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, or the clause at 52.232-10, Payments Under Fixed-Price Architect-Engineer Contracts, and interim payments on cost type contracts.

(2) For contracts that provide for contract financing, requests for payment shall be submitted to the designated billing office as specified in this contract or as directed by the Contracting Officer. Contract financing payments shall be made on the 30th day after receipt of a proper contract financing request by the designated billing office. In the event that an audit or other review of a specific financing request is required to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the due date specified.

(3) For advance payments, loans, or other arrangements that do not involve recurrent submissions of contract financing requests, payment shall be made in accordance with the corresponding contract terms or as directed by the Contracting Officer.

(4) Contract financing payments shall not be assessed an interest penalty for payment delays.

(c) If this contract contains the clause at 52.213-1, Fast Payment Procedure, payments will be made within 15 days after the date of receipt of the invoice.

I.8 BANKRUPTCY (FAR 52.242-13) (JUL 1995)

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed,

the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

I.9 AUTHORIZED DEVIATIONS IN CLAUSES (FAR 52.252-6) (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 NASA/FAR Supplement (48 CFR Chapter 18) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

I.10 OMBUDSMAN (NASA 18-52.215-84) (OCT 1995)

An ombudsman has been appointed to hear concerns from offerors, potential offerors, and contractors during the preaward and postaward phases of this acquisition. The purpose of the ombudsman is not to diminish the authority of the Contracting Officer, the Source Evaluation Board, or the selection official, but to communicate concerns, issues, disagreements, and recommendations of interested parties to the appropriate Government personnel and to work to resolve them. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Interested parties are invited to call the installation ombudsman, Belinda Adams at (804) 864-8989. Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the NASA ombudsman, Thomas S. Luedtke at (202) 358-2090.

I.11 SAFETY AND HEALTH (NASA 18-52.223-70) (SEP 1993)

(a) The Contractor shall take all reasonable safety and health measures in performing under this contract. The Contractor shall comply with all Federal, State, and local laws applicable to safety and health in effect on the date of this contract and with the safety and health standards, specifications, reporting requirements, and provisions set forth in the contract Schedule.

(b) The Contractor shall take or cause to be taken such other safety and health measures the Contracting Officer may reasonably direct. To the extent that the Contractor may be entitled to an equitable adjustment for those measures under the terms and conditions of this contract, the equitable adjustment shall be determined pursuant to the procedures of the changes clause of this contract; provided, that no adjustment shall be made under this safety and health clause for any change for which an equitable adjustment is expressly provided under any other provision of the contract.

(c) The Contractor shall immediately notify and promptly report to the Contracting Officer or a designee any accident, incident, or exposure resulting in fatality, lost-time occupational injury, occupational disease, contamination of property beyond any stated acceptable limits set forth in the Contract Schedule, or property loss of \$25,000 or more arising out of work performed under this contract. The Contractor is not required to include in any report an expression of opinion as to the fault or negligence of any employee. Service contractors (excluding construction contracts) shall provide quarterly reports specifying

lost-time frequency rate, number of lost-time injuries, exposure, and accident/incident dollar losses as specified in the Contract Schedule. The Contractor shall investigate all work-related incidents or accidents to the extent necessary to determine their causes and furnish the Contracting Officer a report, in such form as the Contracting Officer may require, of the investigative findings and proposed or completed corrective actions.

(d) (1) The Contracting Officer may notify the Contractor in writing of any noncompliance with this clause and specify corrective actions to be taken. The Contractor shall promptly take and report any necessary corrective action.

(2) If the Contractor fails or refuses to institute prompt corrective action in accordance with subparagraph (1) above, the Contracting Officer may invoke the stop-work order clause in this contract or any other remedy available to the Government in the event of such failure or refusal.

(e) The Contractor (or subcontractor or supplier) shall insert the substance of this clause, including this paragraph (e) and any applicable Schedule provisions, with appropriate changes of designations of the parties, in subcontracts of every tier that (1) amount to \$1,000,000 or more (unless the Contracting Officer makes a written determination that this is not required), (2) require construction, repair, or alteration in excess of \$25,000, or (3) regardless of dollar amount, involve the use of hazardous materials or operations.

(f) Authorized Government representatives of the Contracting Officer shall have access to and the right to examine the sites or areas where work under this contract is being performed in order to determine the adequacy of the Contractor's safety and health measures under this clause.

(g) As a part of the Contractor's safety plan (and health plan, when applicable) and to the extent required by the Schedule, the Contractor shall furnish a list of all hazardous operations to be performed, including operations indicated in paragraphs (a) and (b) above, and a list of other major or key operations required or planned in the performance of the contract, even though not deemed hazardous by the Contractor. NASA and the Contractor shall jointly decide which operations are to be considered hazardous, with NASA as the final authority. Before hazardous operations commence, the Contractor shall submit for NASA concurrence either or both of the following as required by the Contract Schedule or by the Contracting Officer:

- (1) Written hazardous operating procedures for all hazardous operations.
- (2) A certification program for personnel involved in hazardous operations.

I.12 FINANCIAL REPORTING OF GOVERNMENT-OWNED/CONTRACTOR-HELD PROPERTY (NASA 18-52.245-73) (JUL 1994) ALTERNATE I (MAR 1989)

(a) The Contractor shall prepare and submit monthly a NASA Form 1018, Report of Government-Owned/Contractor-Held Property, in accordance with 18-45.505-14 and the instructions on the form and in Section 18-45.7101 of the NASA FAR Supplement, except that the reporting of space hardware shall be required only as directed in clause 18-52.245-78, Space Hardware Reporting, of this contract, if applicable.

(b) If administration of this contract has been delegated to the Department of Defense, the original of NASA Form 1018 shall be submitted to the NASA installation Financial Management Officer and three copies shall be sent concurrently through the DOD Property Administrator to the NASA office identified below. If the contract is administered by NASA, the original of NASA Form 1018 shall be submitted to the installation Financial Management Officer and three copies shall be sent concurrently to the following NASA office:

ATTN INDUSTRIAL PROPERTY OFFICE
NASA LANGLEY RESEARCH CENTER
MAIL STOP 377
HAMPTON VA 23681-0001

(c) The monthly report is due no later than the last day of the month following the month being reported.

(d) The Contractor agrees to insert the reporting requirement in all first-tier subcontracts, except that the requirement shall provide for the submission of the subcontractors' reports to the Contractor, not to the Government. The Contractor shall require the subcontractors' reports to be submitted in sufficient time to meet the reporting date in paragraph (c) above.

(e) The Contractor's report shall consist of a consolidation of the subcontractors' reports and the Contractor's own report.

PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

SECTION J - LIST OF ATTACHMENTS

- Exhibit A Contract Documentation Requirements, 5 pages
- Exhibit B Procedures for the Preparation and Approval of Contractor
 Reports for Langley Research Center, Form PROC./P-72,
 May 1992, 5 pages
- Exhibit C Subcontracting Plan, June 3, 1994, 12 pages
- Exhibit D Monthly Progress Report for Socioeconomic Goals (Sample)

EXHIBIT A - CONTRACT DOCUMENTATION REQUIREMENTS

I. DOCUMENTATION PREPARATION/SUBMISSION INSTRUCTIONS

A. Monthly Technical Letter Progress Report--The Contractor shall submit monthly technical letter reports for each task assignment describing progress of the task to date, noting all technical areas in which effort is being directed and indicating the status of work within these areas. Tasks may be summarized in one letter report unless otherwise stipulated in individual task assignments. Reports shall be in narrative form, brief and informal in content. These reports shall include:

1. A narrative statement of work accomplished during the report period
2. A statement of current and potential problem areas and proposed corrective action
3. A discussion of work to be performed during the next report period

The monthly progress report shall be submitted within 15 days after the end of each calendar monthly report period. A monthly progress report shall not be required for the period in which the final report is due. This submittal shall be subject to the provisions of the Section I clause entitled "Production Progress Reports."

B. Monthly Financial Management Report

1. The Contractor shall submit a monthly financial management report as provided by the Section I clause entitled "NASA Financial Management Reporting." This report shall be submitted utilizing NASA Form 533M, Monthly Contractor Financial Management Report, in accordance with submission instructions contained on the reverse side of the form. (Columns 8a and 8b, 533M, shall contain estimates for the following two successive months for the reporting a. and c. of paragraph 2. below.)

2. For this task assignment contract a 533M shall be provided for the reporting levels identified below:

- a. Each Authorized Task
- b. All Unassigned Effort (Total estimated cost in B.2, minus sum of all authorized estimated cost.)
- c. Contract Total (Includes the sum of Items a. and b.) Column 9b shall reflect total estimated cost of \$
- d. Due not later than the 15th operating day following the close of the Contractor's accounting period being reported.
- e. Each 533M shall include a narrative explanation for variances exceeding 10 percent between planned dollars and actual dollars for each reporting category (at the total contract level only).

3. In addition, cost detail associated with the following elements shall be included in each of the above, if applicable.

a. Hours

- (1) Prime Direct Productive Labor Hours
- (2) Other Direct Labor Hours
- (3) Interorganizational Hours
- (4) Subcontracting/Consulting Hours
- (5) Total Direct Productive Hours

b. Cost

- (1) Prime Direct Productive Labor Dollars
- (2) Other Direct Labor Dollars
- (3) Interorganizational
- (4) Subcontract/Consultant
- (5) Material
- (6) Material Handling
- (7) Overhead
- (8) Other Direct Costs
 - (a) Travel
 - (b) Computing
 - (c) Miscellaneous
- (9) Total ODCs
- (10) Subtotal (G&A base)
- (11) G&A
- (12) FCCOM
- (13) Total Estimated Cost

C. Other Documentation--Plans, drawings, oral presentation materials and other such documentation as may be necessary shall be delivered in accordance with the requirements defined in the authorized task assignments.

D. Report of Government-Owned/Contractor Held Property (NASA Form 1018)-- The Contractor shall submit the NASA Form 1018 no later than September 30 of each year in accordance with the Section G clause entitled "Financial Reporting of Government-owned/Contractor-held Property."

E. Subcontracting Reports--The Contractor shall submit Standard Form 294, Subcontracting Report for Individual Contracts, Standard Form 295, Summary Subcontractor Report, and in accordance with the instructions on the reverse of the SF 294. In addition to other instructions on the reverse of the SF 294, the Contractor is required to report awards to Women-Owned (W-O) business, Historically Black Colleges and Universities (HBCUs) and other Minority Educational Institutions (MEIs). This information shall be detailed in Block 18 as follows:

Subcontract awards to small W-O businesses this reporting period: \$

Subcontract awards to HBCUs and/or MEIs this reporting period: \$

The total subcontract dollars to W-0 businesses, HBCUs, and MEIs shall be included in Blocks 15A and 16.

In addition to the instructions on the reverse of the SF 295, the Contractor is required to comply with Clause 18-52.219-75, Small Business and Small Disadvantaged Subcontracting Reporting.

Pursuant to the contract clause entitled "Small, and Small Disadvantaged and Women-Owned Small Business Subcontracting Plan" (FAR 52.219-9 and 19.704(a)(5)), you are required to submit a letter progress report on a monthly basis. The "Monthly Progress Report for Socioeconomic Goals" shall be limited to the monthly data only (excluding cumulative data from beginning of Subcontract Plan) as required for Lines 15A, 15B, 15C, and 16 of the Standard Form 294. See the sample in Section J, List of Attachments). Letter progress reports may be signed by the Contract Administrator or equivalent organizational level, and each report is due by the 10th calendar day of the month following the close of the reporting period.

F. Final Reports--Each task assignment may require the Contractor to submit a final report, either formal or informal, which documents and summarizes the results. When a formal final Contractor report is required, it shall be submitted in accordance with the instructions contained in Exhibit B, Procedures for the Preparation and Approval of Contractor Reports for Langley Research Center, Form PROC./P-72. The specified number of approval copies shall be submitted within the time specified in the task assignments.

G. Federal Contractor Veterans Employment Report--In compliance with Clause 52.222-37, Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era, the Contractor shall submit the Federal Contractor Veterans Employment Report (VETS-100) as required by this clause.

H. New Technology Report--The Contractor shall submit all disclosures of reportable items and subject inventions, interim reports, subcontract identification and other information as required by the clause at 18-52.227-70. Further, upon completion of the work under the contract (or subcontract, if any) a final report shall be submitted.

II. DOCUMENT DISTRIBUTION REQUIREMENTS

A. Unless otherwise specified elsewhere in this contract, reports and other documentation shall be submitted f.o.b. destination as specified below, addressed as follows:

National Aeronautics and Space Administration
Langley Research Center
Attn: _____, Mail Stop _____
Contract NAS1-20341
Hampton, VA 23681-0001

B. The following letter codes designate the recipients of reports and other documentation which are required to be delivered to Langley Research Center by the Contractor:

- A--Contract Administrator, Mail Stop 126
- B--Contracting Officer Technical Representative, Mail Stop
- C--New Technology Representative, Mail Stop 212
- D--Patent Counsel, Mail Stop 212
- E--Cost Accounting, Mail Stop 135 (via Mail Stop 175)
- F--Property Administrator
- G--According to Instructions on Form
- H--Small Business Specialist, Mail Stop 144

C. The following are the distribution requirements for reports and other documentation required to be delivered f.o.b. destination. The numeral following the letter code specifies the number of copies to be provided:

<u>DOCUMENT</u>	<u>LETTER CODE AND DISTRIBUTION</u>
Monthly Progress Report	A-1, B-2
Financial Management Report	A-1, B-2, E-2
New Technology or Patent Rights Report	A-1, B-2, C-1, D-1
Report of Government-Owned/Contractor-Held Property (NASA Form 1018)	F-4
Oral Presentation Materials	B-1
Subcontracting Report for Individual Contracts (Standard Form 294)	A-1, H-1
Summary Subcontractor Report (Standard Form 295)	A-1, G-1, H-1
Monthly Progress Report for Socioeconomic Goals	A-1, H-1
Federal Contractor Veterans Employment Report (VETS-100)	G-1
Final Report (Approval Copies)	A-5
Final Report (Approved)	As specified by the Contracting Officer

D. When the Contract Administrator (A) is not designated above to receive a copy of a report or document, the Contractor shall furnish a copy of the report/document transmittal letter to the Contract Administrator. The Contractor shall also furnish a copy of the transmittal letter and a copy of each Financial Management Report to the delegated Administrative Contracting Officer of the cognizant DoD (or other agency) contract administrative services component.

EXHIBIT B

PROCEDURES FOR THE PREPARATION AND APPROVAL OF CONTRACTOR
REPORTS FOR LANGLEY RESEARCH CENTER

GUIDELINES. - The following documents or subsequent editions in effect on date of contract shall serve as the basis for preparation of Contractor Reports:

NASA SP-7047 NASA Publications Guide
DoD 5220.22-M Industrial Security Manual for Safeguarding Classified
Information, January 1991

NOTE: Copies of NASA SP-7047 will be furnished by the Contracting Officer upon request.

FORMAT AND ORGANIZATION. - The format and organization of a Contractor Report should be consistent and follow the practices recommended in the NASA Publications Guide (NASA SP-7047). For questions concerning format, contact Langley Technical Editing Branch at (804) 864-2518. An original Report Documentation Page (Standard Form 298) shall be included as the last page in the report. (The instructions on the back of the form shall not appear in the printed report.) A reproducible copy of this form will be furnished to you with your copy of the executed contract.

TRADEMARKS. - U.S. Government policy prohibits endorsing or criticizing commercial products in its publications. Use of trademarks is discouraged. If a trademark must be used, its owner must be credited and the trademark must be used as an adjective modifying the generic name.

REFERENCES. - Material that is not obtainable or available must not be listed in the references. Documents of NASA contracts published as in-house documents must be referenced as NASA CR's, not as NASA Contract Numbers.

SECURITY. - Security markings, when necessary, shall be consistent with DD Form 254, the directive issued by the Security Classification Officer, and shall conform to requirements established in the DoD Industrial Security Manual. For questions concerning security classification, contact LaRC Security Classification Officer at (804) 864-3415.

APPROVAL COPIES.

1. Upon completion of a report, the Contractor shall submit five (5) approval copies to the Contracting Officer for review and approval by NASA. These copies may be reproduced and assembled by an economical means by the Contractor.

2. The Contractor will be notified of acceptance of the approval copy of the report by the Contracting Officer within sixty (60) days. Approval will be contingent upon changes required by NASA. An original master copy in agreement with the approval copy shall be prepared and submitted by the Contractor.

ORIGINAL MANUSCRIPT. - The original manuscript of a Contractor Report shall consist of a one-sided master copy of the text, cleanly typed on opaque white paper, from which negatives and printing plates can be made, unscreened glossy prints of photographs, and original artwork of a quality suitable for reproduction

by offset printing. Suggestions for preparing acceptable copy are given in NASA SP-7047. The original manuscript should not be bound and should have consecutive page numbers added in proper sequence. Odd numbered pages are numbered at the bottom of the page on the right; even, on the left. To avoid damage in handling and shipping, the original manuscript should be carefully packaged.

DISTRIBUTION AND DUPLICATION. - From the review made at the Langley Research Center, the Contracting Officer will make a determination concerning publication and distribution, which the Contractor shall complete within thirty (30) days after receipt of approval copies.

1. If NASA Langley Research Center considers that the report should be distributed only in limited quantities, the Contractor shall be requested to prepare duplicates of the original manuscript and distribute the original manuscript and copies (not to exceed 100¹) in accordance with a distribution list supplied by the Contracting Officer. In this case, the report will be assigned a number in the NASA CR high-numbered series (CR number above 50,000) by the Contracting Officer. When necessary, the Contractor will be provided with any notices to be added to the cover concerning distribution limitations.

2. If the NASA Langley Research Center considers the report of such quality or interest that it warrants wide distribution, it will be recommended to NASA Headquarters for publication in the NASA CR low-numbered series, and the Contractor will be requested to forward the original manuscript, together with up to 25¹ duplicate copies to Langley Research Center addresses furnished by the Contracting Officer. At the direction of the Contracting Officer, advance distribution by the Center may be made to those having a need to know. Printing from the original manuscript for final distribution will be provided by NASA. NASA will include the CR number on the cover and provide the author(s) with 10 copies each of the final printed report. (Author(s) will not receive 10 copies each of restricted distribution reports.)

PRINTING STANDARDS. - To comply with NASA printing requirements and cost considerations, reports submitted should conform to the following standards. Any questions regarding implementation of these standards should be directed to the Langley Printing Management Officer (LPMO) at (804) 864-3284.

1. Multiple-copy production shall be by the offset duplicating method, except as described in subparagraphs 1a and 1b below.

a. Production may be on office copying machines or on diazo equipment when the number of copies is so small that such production is more economical than offset duplicating. However, the images will be clearly legible and permanent.

¹See Clause 18-52.208-81, Printing and Duplicating, for more detailed guidance.

b. Any image that cannot be accommodated by a foldout (as described in paragraph 2 herein) will be produced by the diazo or electrostatic method in a size dictated by legibility requirements.

2. The page image size of cover and text pages including headings will not exceed 7 1/8 x 9 1/8 inches. Page image including page number will not exceed 7 1/8 x 10 inches. Diagrams, charts, drawings, etc., shall be reduced and, if necessary, run broadside to eliminate oversized pages. If such reduction is too great for legibility, the subject will be split and run on two facing pages or run as a foldout with an image not larger than 14 x 9 1/2 inches.

3. Text and foldout pages will be on either of two paper stocks:

a. Offset book paper, white, substance 50 lbs. (basis 25 x 38/1000 sheets, Joint Committee on Printing (JCP) A60).

b. Chemical wood writing paper, white or colored, substance 20 lbs. (basis 17 x 22/1000 sheets, JCP G30).

4. Covers, if necessary, will be on either of two paper stocks:

a. Vellum finish (or antique finish) cover paper, white or colored, substance 50 lbs. (basis 20 x 26/1000 sheets, JCP L20).

b. Chemical wood index paper, white or colored, substance 110 lbs. (basis 25 1/2 x 30 1/2/1000 sheets, JCP K20).

5. Use of tabs is expensive and rarely necessary. First consideration should be given to the use of a contents page. Second choice should be bleed-edge index markers. If tabs must be used, they will be duplicated on one side only, on chemical wood index paper, white or colored, substance 110 lbs. (basis 25 1/2 x 30 1/2/1000 sheets); they will be angle cut and not die cut.

6. All duplicating will be in black ink. If other or additional color is required for a functional purpose, approval in writing must be obtained from the Langley Printing Management Officer (LPMO) through the Contracting Officer before preparation of final reproduction copy.

7. Text pages of all documents produced will be reproduced on both sides of sheet where feasible.

8. Binding will be by fastening with wire staples or stitches, either one in a corner or two in the binding margin. Documents too thick to staple or stitch will be produced in two or more volumes. Prong fasteners, binding screws, plastic combs, and spiral and similar wire fasteners add to production time and costs, and generally their use should be avoided.

9. Plastic protective sheets will not be used.

10. When hard-cover protection of a document is needed, the document will be drilled with three round 1/4 inch or 3/8 inch holes, 4 1/4 inches center-to-center, for insertion into standard 3-ring binders. Special stamped, printed or silk-screened binders shall not be used. A single corner staple or stitch or a band will be used to hold the document together until it is put into a binder.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
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1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE May 1991	3. REPORT TYPE AND DATES COVERED Contractor Report		
4. TITLE AND SUBTITLE Science Needs for Real-Time Adaptable Data Products From the Earth Observing System			5. FUNDING NUMBERS C NAS1-18676	
6. AUTHOR(S) Paul D. Try, Paul F. Twitchell, and Christopher R. Redder				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Science and Technology Corporation 101 Research Drive Hampton, VA 23666-1340			8. PERFORMING ORGANIZATION REPORT NUMBER STC-42518	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) National Aeronautics and Space Administration Langley Research Center Hampton, VA 23665-5225			10. SPONSORING/MONITORING AGENCY REPORT NUMBER NASA CR-0000	
11. SUPPLEMENTARY NOTES Langley Technical Monitor: David E. Bowker Final Report				
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13. ABSTRACT (Maximum 200 words) Advancing the understanding of the Earth system requires improved knowledge of the time-variant governing processes, and the knowledge of these processes often comes only from real-time observations of the changing variables as seen from space. The unpredictability of what is to be measured and at what rate requires flexibility in the observational capability. The Earth Observing System (EOS) will be a major source of observational data during the next 10- to 25-year timeframe. Consequently, to ensure the needed advances in the understanding of the Earth system, real-time onboard processing is concluded to be a critical need for EOS. (Provide an unclassified abstract not to exceed 200 words)				
14. SUBJECT TERMS Real-time data needs; Onboard data processing; Real-time processing for EOS; EOS communication needs			15. NUMBER OF PAGES 76	16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

EXHIBIT C
SUBCONTRACTING PLAN

3.3 BOEING'S SMALL BUSINESS/SMALL DISADVANTAGED BUSINESS SUBCONTRACTING STRATEGY FOR AIRCRAFT AND SPACECRAFT GUIDANCE AND CONTROL TECHNOLOGY PROGRAM

3.3.1 Introduction

Boeing is committed to support NASA's Small Business (SB) and Small Disadvantaged Business (SDB) programs. We understand the importance of NASA's SB/SDB initiative and have taken action steps to provide SB/SDB subcontracting opportunities and promote the development of SB/SDB suppliers. Our challenging goal for the Aircraft and Spacecraft Guidance and Control Technology (ASGCT) Program is for 8.0% of the contract effort to be given to SDB companies.

Boeing will pursue an aggressive, proactive SDB subcontracting strategy on ASGCT to attain these goals. Boeing is supporting NASA's commitment to Congress to achieve an 8% SDB goal. With the 8% SDB goal levied as a total NASA objective, we understand that NASA will need each of its procuring agencies as well as all of its prime contractors, 1st tier subcontractors and lower tier subcontractors, to strongly support NASA's objective in order to accomplish the congressional mandate. As the prime contractor, we will take the initiative to perform the following:

- a. We will require any major non SB/SDB subcontractors to submit SB/SDB plans to Boeing on all purchase contracts which exceed \$500K. We will manage these plans and monitor their progress to ensure that subcontractors meet their planned commitments.
- b. We will require any non-SB/SDB subcontractors to report their SB and SDB subcontracting results to Boeing. We will measure their progress, anticipate or identify and avert any potential problems, and develop any necessary corrective actions to enhance SDB participation at all subcontracting levels. Further, we will hold discussions on a regular basis with all subcontractors, as necessary, to evaluate and improve their subcontracting performances.
- c. Boeing shares NASA's intentions for utilizing high technology SDBs to the greatest extent possible. An unique process to match our technology requirements with qualified high tech SDBs is being implemented to expand high technology SDB participation on all Boeing programs.
- d. For this ASGCT program, we are including Dynacs Engineering Co. of Clearwater, FL. in NASA task assignment activities. We will review each of the potential task assignments with Dynacs and determine their appropriate level of work.
- e. Boeing will continuously review the process described in c. to evaluate other SB/SDB businesses with G&C technology capability applicable to any particular task assignment. We will strive to include other qualified SB/SDBs participating in the ASGCT program.
- f. The Program manager (Mr. I. Hirsch) will serve as SB/SDB advocate in the ASGCT program to provide direction and focus on our SB/SDB goals. He will help achieve our SB/SDB subcontracting

goals and work directly with the task area leaders and the Defense & Space Group SB/SDB Programs organization.

The Boeing Fiscal Year [1996] Puget Sound Non-DOD Master Small Business and Small Disadvantaged Business Subcontracting Plan Document, D658-10340-1, is incorporated herein by reference. The master plan has been approved by the Federal Government's cognizant Contract Administration Office (Robert G. Ingram, Principal Administrative Contracting Officer) for the period October 1, 1995 to September 30, 1996. It contains the basic elements required in a SB/SDB subcontracting plan except for our projected SB/SDB subcontracting goals; anticipated prime contract dollars; identification of primary products, services, and high technology requirements; goal development and solicitation methodologies, including how we intend to reach and surpass our goals. This Individual SB/SDB subcontracting plan addresses our planned goals, dollars, products and services, and methodologies, and focuses on our aggressive, innovative SB/SDB subcontracting strategy.

3.3.2 Applicable Regulations

The master plan is prepared in accordance with the following:

- a. Federal Acquisition Regulations, FAR, Part 19.7, "Subcontracting with Small Business and Small Disadvantaged Business Concerns."
- b. FAR 52.219-9, "Small Business and Small Disadvantaged Business Subcontracting Plan."
- c. NASA FAR Supplement Subpart 18-19.7, "Subcontracting with Small Business and Small Disadvantaged Business Concerns."
- d. 18-52.219-75, "NASA Small Business and Small Disadvantaged Business Subcontracting Reporting," and
- e. 18-52.219-76, "NASA Small Disadvantaged Business Goal."

3.3.2.1 Scope

This plan will apply to the prime contract throughout the life of the contract and to any subsequent prime contract changes. It will cover the estimated period of prime contract performance from June 1996 to May 2001.

The mission of The Boeing Company's Socioeconomic Program is to effectively promote and enhance opportunities for small businesses (SB), women-owned small businesses (WOSB), small disadvantaged businesses (SDB), and Historically Black Colleges & Universities and Minority Institutions (HBCU/MIs) to participate equitably and proportionally in company subcontract procurements. However, the term "SB/SDB" as used henceforth in this document shall be understood to represent all the above mentioned classifications unless otherwise specifically addressed.

3.3.3 Definition of Small Business Concern

As used in this subcontracting plan, the term "small business concern" (SB) 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 SB under the criteria and size standards of FAR 19.102. Such a concern is "not dominant in its field of operation" when it does not exercise a controlling or major influence on a national basis in a kind of business activity in which a number of business concerns are primarily engaged. "Concern" means any business entity organized for profit with a place of business located in the United States and which makes a significant contribution to the U.S. economy through payment of taxes and/or use of American products, materials, and/or labor. "Concern" includes but is not limited to an individual, partnership, corporation, joint venture, association, or cooperative.

3.3.4 Definition of Small Disadvantaged Business Concern

The term "small disadvantaged business concern" (SDB) means a SB concern that is at least 51% unconditionally owned by one or more individuals who are socially and economically disadvantaged; or a publicly owned business that has at least 51% of its stock unconditionally owned by one or more socially and economically disadvantaged individuals; and that has its management and daily business controlled by one or more such individuals. This term also means a SB concern that is at least 51% unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian organization.

In accordance with FAR 19.001, the term "socially and economically disadvantaged individuals" includes individuals who certify they are members of named groups (African Americans, Hispanic Americans, Native American Indians, Asian-Pacific Americans, Subcontinent-Asian Americans) and other minorities as defined by the U.S. Small Business Administration. NASA FAR Supplement Subpart 18-19.70, "NASA Small Disadvantaged Business Contracting and Subcontracting Goal," indicates that "Socially and economically disadvantaged individuals shall be deemed to include women."

3.3.5 Definition of Women-Owned Small Business Concern

The term "women-owned small business" shall mean a SB concern which is at least 51% owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means actively involved in the day-to-day management. Again, as mentioned in the NASA definition for SDB concerns above, WOSBs are also considered SDBs.

3.3.6 Definition of Historically Black Colleges & Universities and Minority Institutions (HBCU/MIs)

The term historically Black colleges and universities means institutions with a principal mission that was and is the education of African Americans and that meet the requirements prescribed by the Secretary of Education at 34 CFR 608.2. The term "minority institutions" means institutions that meet the requirements prescribed by the Secretary of Education at 34 CFR 607.2 including the enrollment of needy students and low average educational and general expenditures per full-time equivalent undergraduate student.

3.3.7 Size/Status Representation

Pursuant to Public Law 95-507 and relevant regulations issued pursuant thereto, The Boeing Company acting in good faith relies on written representations by subcontractors regarding their status as either a SB or a SDB business. The subcontractor provides a signed written representation to The Boeing Company certifying its status as either a SB concern or SDB concern. Notice is provided to subcontractors concerning penalties for misrepresentations of business status as SB or SDB for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the contractor's subcontracting plan.

3.3.8 Boeing Commitment

We consider a strong SB/SDB base to be absolutely essential to a healthy, growing national economy. These SB/SDBs are the businesses that consistently demonstrate:

- a. The ability to provide requisite skills, knowledge, resources and experience.
- b. The integrity to supply high quality products/services at fair prices.
- c. Performance capability to manufacture and deliver superior quality products or perform a noteworthy service on schedule and within budget.
- d. Trequisite team spirit to work with prime contractors and NASA in a mutually beneficial team environment.
- c. Achievement of customer satisfaction, constantly looking for opportunities to outperform minimum contractual requirements, including better or more efficient ways to do things, for the prime contractor and the ultimate customer.

In return, Boeing offers these SB/SDB suppliers:

- a. Memtorship: training, guidance and continuous feedback necessary to help SB/SDBs become, and remain important contributors.
- b. Participation: the opportunity to be part of the team, not just a directed subcontractor, and grow in both degree of involvement and business success.

- c. Motivation: recognition for a job well done and appropriate corrective action or incentives to continuously improve quality.
- d. Ethical Treatment: fair business dealings and equal opportunity to compete for work they are qualified to perform.

The effectiveness of Boeing's commitment to the development of SB/SDBs was recognized in October 1993 during Minority Enterprise Development Week in Washington, D.C. The U.S. Small Business Administration and the U.S. Department of Commerce (Minority Business Development Agency) honored Boeing with the Majority Private Sector Award for Region X. This award was given to acknowledge our continuing dedication and commitment to minority economic development through such activities as (1) our F-22 Mentor-Protege' agreement; (2) various programs benefiting HBCU/MIs; (3) our use of dedicated Regional SB/SDB program administrators; and (4) our recognition of SB and SDB Suppliers of the Year. Boeing also received the Corporation of the Year Award from the San Francisco Region of Minority Business Development Agency in September 1993.

Our subcontracting performance on NASA programs for fiscal year 1993 demonstrates our commitment to SB/SDB participation: 38% of subcontracted effort on NASA programs was awarded to SBs and 15% to SDBs.

3.3.9 Goals for Aircraft and Spacecraft Guidance and Control Technology Program

3.3.9.1 SB and SDB Goals.

Boeing plans to award a minimum of 8.0% of the total ASGCT prime contract dollar value to SDB firms and institutions qualifying under the U.S. Small Business Administration company size criteria. The SDB percent goal, including HBCU/MIs and WOSBs, while stated separately as a percentage of Estimated Total Prime Contract Dollars, is included in the SB goal and constitutes a subset thereof. The estimated total prime contract \$ amount will cover all first-tier and lower tier subcontracts issued/placed in the support and performance of the prime contract.

3.3.9.2 Prime Contract Goals

The following SB and SDB percent goals are hereby expressed separately in terms of a percentage of the Planned Total Prime Contract Dollar Value for the five years (85,000 hours).

Planned <u>SB \$</u>	Planned <u>SB %</u>	Planned <u>SDB \$</u>	Planned <u>SDB %</u>	Total Prime <u>Contract \$</u>
\$808,000	8.0%	\$808,000	8.0%	\$10,100,000

These goals are predicated upon known and expected program requirements, the availability of qualified suppliers and the successful performance of the prime contract. The dollar values are estimates based on the percentage goals and the estimated Prime Contract Value. Boeing will strive to exceed the committed SDB percentage thresholds.

3.3.9.3 Principal Types of Products and Services to be Subcontracted

To date, we have identified SDB bidding opportunities on all of the six task areas identified in the RFP. These are:

- A.1 Multidisciplinary Analysis and Design for Subsonic, Supersonic, and Hypersonic Aircraft
- A.2 High performance Aircraft Aircraft Guidance and Control
- B.1 Controls-Structures Integration Benefits to Spacecraft Experiments
- B.2 Dynamics and Control of Multibody Systems
- B.3 Pointing and Isolation Systems
- B.4 Space Vehicles Guidance

We have initially determined that Dynacs Engineering Co. is an exceptionally qualified SDB subcontractor. We have received resumes of their qualified personnel and their list of past contracts where they have performed on similar tasks. For this proposal we have priced their support at the full 8.0% SDB goal.

However we also plan to maintain and expand the list of potential SDB bidders in this field. Our current qualified list of "Qualified and/or High Potential" SB/SDB for G&C Technology is found in Figure 3.3.9-1. This list will continue to be updated over the life of this contract and we anticipate requesting bids from some of these SDB's depending on the scope and technology requirements of the NASA task assignments.

Business/company name (year established)	Capabilities/Specialty	Type		Employees		Subcontracting Requirement
		WOSB	SDB	Total	Sci/engineer	
AMCOMP Corp., Torrance, CA (1988)	Mission analysis for range systems; navigation, guidance, and control analysis		X	90	65	Guidance navigation, and control analysis
Campbell Engineering, Inc., Huntsville, AL (1978)	Mechanical design and analysis of aerospace hardware, including rocket launchers and propulsion systems and guidance and control systems	X		50	5	Guidance navigation, and control analysis
Dynacs Engineering Co., Clearwater, FL (1985)	RDT&E (structures, mechanics, guidance, navigation, controls and communications)		X	46	43	Guidance navigation, and control analysis
Integrated Systems, Inc., Santa Clara, CA (1984)	Computer software; engineering Services		X	195	Unknown	Guidance navigation, and control analysis
Microcosm, Inc. Torrance, CA (1984)	Altitude sensor and orbital analysis; autonomous navigation; and space mission geometry	X		15	8	Guidance navigation, and control analysis
Scientific Systems Co., Inc. Woburn, MA (1987)	Missile and aircraft guidance and control		X	20	15	Guidance navigation, and control analysis
Sy Technology, Inc., Huntsville, AL (1996)	Missile testing; thermal analysis; and guidance and control target signatures		X	52	45	Guidance navigation, and control analysis
Technology Advancements, Inc Plava Del Rev, CA (1989)	Satellite systems; space vehicles; and spacecraft navigation and guidance systems		X	30	Unknown	Guidance navigation, and control analysis

3.3.9.4 Approach Used to Develop SB/SDB Goals

For this contract, NASA levied the FAR clause, 18-52.219-76, NASA Small Disadvantaged Business Goal, which requires 8% dollar participation by SDB's. We determined to proactively meet this goal by reviewing the known SDB's with qualifications and experience in the G&C technology field. We initiated discussions with Dynacs Engineering Co. and established their interest and personnel availability to participate in the program. They also agreed to participate with the stipulation of the NASA requirement of no fee. They reviewed the RFP and especially the SOW and determined they had applicable experience in all of the 6 task areas. With the intent to form a strong team throughout the program, we requested and received a cost proposal for 2,500 hours per year (approximately 8% of the estimated dollar value of the program) which are included in the cost sections of this proposal.

3.3.9.5 Method Used to Identify Prospective SB/SDB Sources

The method of identifying SB/SDB's in the company is from both internal and external sources. Internal sources include:

- a. Boeing procurement organization data, manual reference files and automated systems, on experienced, qualified SB/SDBs.
- b. Interdivisional exchanges of SB/SDB source information between Boeing Buyers/Engineers/Divisional & Regional SB/SDB Program Administrators, including the Regional Administrators "Marketing (Survey) Packages," Potential Supplier Profile Questionnaires and the Boeing Directory of Buyers & Commodity Cross Reference Index.
- c. NASA annual List of SDB, Women-Owned and 8(a) Contractors.
- d. NASA annual SB/SDB Document (Active NASA SB/SDB Prime Contractors and Subcontractors).
- e. NASA Minority Business Resource Advisory Committee (MBRAC).
- f. NASA's University Program Management Information System Historically Black Colleges & Universities and Minority Institutions (HBCU/MIs) Listing (periodic).
- g. Try Us SDB Directory (annual).
- h. U.S. SBA's Procurement Automated Source System (PASS).
- i. Aerospace Industries Association (AIA) Automated SDB Database System
- j. Inventory of the Capabilities of the HBCU/MIs (periodic)
- k. Federal and State Suppliers Guide (annual).
- l. Minority-Owned High Tech Businesses, Business Research Services, Inc. (periodic).

External sources include:

- a. High Tech SBIR (Small [& Small Disadvantaged] Business Innovation Research) conferences sponsored by NASA, DOD and other Federal Agencies, which are attended by Boeing Research/Engineering and Procurement personnel.
- b. Boeing advertisements for high tech SDBs in high profile business, science & technology-oriented newspapers, magazines and related trade publications.
- c. National Minority Purchasing Council Vendor Information Service.
- d. National/Regional Minority Supplier Development Councils (NMSDC).
- e. Procurement Technical Assistance Centers (PTAC) nation-wide.
- f. Local, regional and national SB and SDB opportunity trade fairs.
- g. Congressional procurement opportunity conferences.
- h. U.S. Small Business Administration Regional/District Offices.

3.3.9.6 SDB Subcontracting Incentive Plan

This will not be applicable for this program.

3.3.10 Indirect and Overhead Costs

The initial subcontracting goals do not include a proportionate share of products or services whose costs are normally allocated as indirect or overhead expenses. However, Standard Form (SF) 295's submitted by Boeing to NASA do include indirect or overhead allocations. Indirect and overhead costs are allocated proportionally across direct award commitments of the same business size (e.g., SB, SDB and large businesses). For example, for SB, if NASA direct dollars represented 65% of the subcontract work and commercial direct dollars represented 35%, then indirect/overhead costs would be apportioned accordingly on that percentage basis.

3.3.11 Responsible Corporate Executive

The individual responsible for the administration of the corporate wide SB/SDB Program is the Corporate SB/SDB Programs Liaison Officer. Mr. Wayne N. Wicks, the Boeing Defense & Space Group Director of Materiel, is the Corporate SB/SDB Programs Liaison Officer who will:

- a. Advise and assist division or subsidiary organizations on SB/SDB matters and coordinate all activities requiring uniform handling.
- b. Assist in the establishment of internal corporate goals.
- c. Establish report formats and due dates for submission of division and subsidiary organization reports.
- d. Prepare and submit contractually-required reports annually or as required on an aggregate corporate basis to appropriate government agencies. A quarterly report is made to the chairman and chief executive officer and the president/general manager of each division or subsidiary.

- e. Represent Boeing in matters relative to this subject.
- f. Sponsor programs to assist SB/SDB concerns to gain introduction to all appropriate procurement organizations.
- g. Maintain listings of SB and SDB firms.
- h. Establish regional offices as required.

3.3.12 Responsible Plan Administrator

Mr. I. Hirsch, ASGCT program manager, has overall responsibility for the successful completion of the prime contract as well as ensuring that our SB/SDB goals are met. He will:

- a. Ensure that individual task assignment decisions include adequate and timely consideration of the potentialities of SDB's.
- b. Ensure that bidders lists for competitively bid items include SDBs when such capability or requirement exists.
- c. Assist SDB's by arranging solicitations, time for the preparation of bids, Statement-of-Work tasks, and delivery schedules so as to facilitate the participation of SDB's. Reasonable effort will be made to give all known and qualified potential bidders an opportunity to compete over a period of time.
- d. Monitor and motivate Task Area Leaders and task leaders responsible for supporting the SDB Programs.

3.3.13 Efforts to Ensure Equitable Opportunity

As an adjunct to federal and state laws, Boeing corporate policy defines rigid standards of ethical conduct/treatment for its employees, suppliers and customers. Within these guidelines, Boeing is taking aggressive action with innovative initiatives to improve its SB/SDB participation, especially high tech SDBs. Some of these initiatives are already in force during this proposal's preparation. Examples of our current initiatives include:

- a. Evaluating, considering and identifying SB/SDB bidding possibilities at the onset of the program during the preproposal, proposal, and planning processes.
- b. Continuing to develop our list of SB, SDB, HBCU/MIs proficient in the guidance and control technology field to perform future G&C research, studies, analysis and testing.
- c. Accepting the responsibility to expend the resources and time to aid in the development and expansion of a high tech SDB supplier base.

Boeing is cooperating closely with NASA to help achieve its agency-wide SDB participation goal. To this end, the Boeing D&SG Director of Materiel, Wayne N. Wicks, has volunteered to serve on the NASA Minority

Business Resource Advisory Committee in which he is the only large business representative. This involvement, coupled with working together with prominent committee members who head high-performance SDB enterprises, will help ensure Boeing understands current NASA plans and SDB concerns relative to improving high tech SDB participation.

3.3.14 Requirements Flown down

Since Boeing is committed to meeting or exceeding its established SB/SDB goals, we have developed progressive, non-traditional ways to flow down, negotiate and enforce SB/SDB participation percentages--both within Boeing and with any major subcontractor.

SB/SDB Requirements Flow Down Within Boeing. Primary responsibility for reaching and surpassing our SB/SDB goals rests with the Program manager. Each task area leader will review initial task assignments and determine the appropriate initial SB/SDB opportunities and projected percent of participation. He will review with Dynacs Engineering Co., Inc. any potential participation on appropriate task assignments. The assigned task leader will structure a specific SOW for the SDB (Dynacs or otherwise if appropriate).

SB/SDB Requirements Flow Down For Major Subcontractors The Boeing Company agrees to incorporate the "Utilization of Small Business and Small Disadvantaged Business Concerns" clause of FAR 52.219-8 in all subcontracts that offer further subcontracting opportunities and will require all subcontractors (except SB/SDB concerns) who receive subcontracts in excess of \$500,000 to adopt a plan similar to the plan required by the clause of FAR 52.219-9, "Small Business and Small Disadvantaged Business Subcontracting Plan".

The same SB/SDB program percentage goals of 8% will be required as well of all any major subcontractors with purchase contracts over \$500,000 .

Boeing will report to NASA the subtier SB/SDB procurement dollars of any subcontractors separately to more accurately reflect the favorable impact that ASGCT has on SB/SDBs. To support this reporting effort, all Boeing suppliers--not just those with purchase contracts in excess of \$500,000--will be requested to regularly report their lower tier subcontracted dollars.

3.3.15 Surveys and Reports

Boeing will cooperate in any studies or surveys that may be required, submit Standard Form (SF) 294 in accordance with the instructions on the form and also provide any requested periodic reports enabling NASA to determine prime contract compliance or providing reasons explaining any significant variances between SB/SDB goals and actual SB/SDB subcontracting progress/final results. Boeing will further submit (at the corporate level) a single aggregate SF 295 for each Federal agency in accordance with the instructions on the form.

Specifically, in accordance with NASA FAR Supplement Subpart 18-52.219-7, "Small Business and Small Disadvantaged Business Subcontracting Reporting", Boeing agrees to the following additional NASA SF 295 reporting requirements:

- a. Boeing will now submit NASA SF 295's on a quarterly basis -- 30 days after the close of each reporting period -- instead of on an annual basis.
- b. Boeing will complete Item 15 (Subcontract Awards to Historically Black Colleges and Universities/Minority Institutions) in accordance with the existing instructions applicable to DOD activities.

The Definitions section of NASA FAR Supplement Subpart 18-19.70, "NASA Small Disadvantaged Business Contracting and Subcontracting Goal", states that "Socially and economically disadvantaged individuals shall be deemed to include women". Boeing accepts this NASA interpretation and willingly reports subcontracts awarded to SDBs and WOSBs both ways, separately on quarterly NASA SF 295's and combined in which awards made to WOSBs are included as a subset of SDBs.

3.3.16 Records

Boeing will maintain the following files:

- a.. Records in the form of automated SB/SDB data systems and manual SB/SDB reference files which were described in 3.3.9 (5) under "Internal Sources" that are used to find potential SB/SDB subcontractors.
- b. Records of organizations contacted in an attempt to locate SB/SDB suppliers which were also described in 3.3.9(5) under "External Sources".
- c. Records of each subcontract solicitation resulting in a purchase contract award over \$100,000, which document efforts to maximize SB and SDB bidding opportunities;
 - (1) Whether SBs were solicited and if not, why not?
 - (2) Whether SDBs were solicited and if not, why not?
 - (3) If applicable, the reason award was not made to a SB or SDB concern.
- d. Records of any person-to-person outreach efforts to contact SB/SDB trade associations, SB/SDB business development organizations and SB/SDB conferences/trade fairs to seek out qualified SB and SDB sources.
- e. Records to support internal SB/SDB awareness, guidance and motivation training classes provided to Boeing Proposal Team Members and technical/procurement personnel through workshops/seminars.
- f. On a contract-by-contract basis, records to support award data submitted by Boeing to the Government including the name, address, and business size of each subcontractor.

3.3.17 Technical and Nonfinancial Assistance to SB/SDBs

Part of Boeing's proactive mentorship includes technical and nonfinancial assistance to SB/SDBs that show potential for becoming significant contributors. This help is available to highly regarded, prospective SB/SDB

suppliers to become qualified subcontractors or improve their competitive posture. Forms of direct and nondirect assistance include:

- a. Conducting interactive workshops to familiarize SB/SDBs with how Boeing and its Customers do business.
- b. Offering major proposal preparation information and guidelines.
- c. Providing basic advice and guidance on contractual terms and conditions, quality requirements, and understanding statements of work, specifications, and industry standards and practices.
- d. Helping draft quality assurance manuals.
- e. Aiding in designing resourceful production planning systems, including charting efficient work flows.
- f. Recommending more effective procurement policies and procedures.
- g. Providing faster, better payment terms on purchase contracts, if appropriate, to alleviate constrained cash flow situations; grant progress payments with Customer approval.
- h. Established Boeing partnerships with engineering departments at HBCU/MIs.
- i. Have contributed \$1 million to the National Minority Supplier Development Council's Business Consortium Fund (BCF). The BCF provides contract financing to certified ethnic minority businesses across the nation through a network of local participating banks and regional councils.
- j. Sponsored two scholarships annually for minority firm owners to the Amos Tuck Minority Business Executive Program at Dartmouth College.
- k. Dispatching Boeing resident teams to SB/SDB facilities to help prevent or resolve problems.

3.3.18 Summary

Boeing is presenting an overall SB/SDB Subcontracting Plan that is fully compliant with all Government regulations, laws, and policies and satisfies or exceeds all requirements of the ASGCT RFP instructions.

We will ensure that SB/SDBs have a meaningful and significant role in our subcontracting efforts and that we meet or exceed our planned SDB level of participation. We have based our entire committed SDB 8.0 % goals on total prime contract dollars--not just the subcontracting dollar portion. We have also recognized the pivotal role that our program manager, task area leaders and task leaders will play in meeting our SB/SDB goals. To ensure that role is satisfied, we have implemented the necessary guidelines, empowerment, and performance motivation and measurement mechanisms to ensure success, up to and including using the SDB target as part of our ASGCT technical and management personnel performance management process. We also believe that by forming a long-term relationship on ASGCT with Dynacs Engineering Co. we will best ensure meeting our commitment on this contract and providing a means to continuously raise the qualification level and success of an SDB in the G&C Technology field.

TO: NASA Langley Research Center
126/Contract Specialist
Hampton, VA 23681-0001

FROM: (Insert Company Name)

SUBJECT: Monthly Progress Report for Socioeconomic Goals--
NAS1-_____ for Period _____
(month/day/year)

15A. Small Business Concerns \$ _____
(include disadvantaged)

15B. Large Business Concerns \$ _____

15C. Total \$ _____
(sum of Small and Large Businesses)

16. Small Disadvantaged Business Concerns \$ _____
Woman-Owned Small Business \$ _____
(include as part of 15A and 16 above)
Historical Black Colleges/Universities \$ _____
and/or Minority Institutions
(include as part of 15A and 16 above)