

## CONTRACT NAS1-98090

The following information has been determined to be exempt from disclosure and has been deleted from the contract and contract modifications:

- Section H.11: Advance Agreement on Indirect Rates.

The deleted material is exempt from disclosure under 14 C.F.R. 1206.300 (b) (4) which covers trade secrets and commercial or financial information obtained from a person and privileged or confidential. It has been held that commercial or financial matter is "confidential" for purposes of this exemption if its disclosure would be likely to have either of the following effects: (1) impair the Government's ability to obtain necessary information in the future; or (2) cause substantial harm to the competitive position of the person from whom the information was obtained, National Parks and Conservation v. Morton, 498 F2d 765 (D.C. Cir. 1974).

Disclosure of the financial information could cause substantial competitive harm to the contractor by providing its competitors insight into the company's costing practices and management approaches. Furthermore, disclosure would discourage other companies from participating in future competitive procurements, thereby impairing the Government's ability to obtain complete and accurate cost data, and in turn, frustrating the mandate to obtain maximum competition in negotiated procurements.

<b>SOLICITATION, OFFER AND AWARD</b>		1 THIS CONTRACT IS A RATED ORDER DPAS (15 CFR 700)	ORDER RATING <b>DO-C9</b>	PAGE OF PAGE(S) <b>1   51</b>
2 CONTRACT NO <b>NAS1-98090</b>	3 SOLICITATION NO <b>1-64-GGH.1684</b>	4 TYPE OF SOLICITATION <input checked="" type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	5 DATE ISSUED <b>12/17/97</b>	6 REQUISITION/PURCHASE NO <b>GGH. 1684</b>

National Aeronautics and Space Administration Langley Research Center Hampton, VA 23681-0001	NASA, Langley Research Center 9A Langley Boulevard, Building 1195B, Room 125 Hampton, VA 23681-0001
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10 FOR INFORMATION CALL	A NAME <b>Charlotte T. Hardy</b>	B TELEPHONE (Include area code) (NO COLLECT CALLS) <b>(757) 864-2526</b>
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13 DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No 52.232-8)	10 CALENDAR DAYS	20 CALENDAR DAYS	30 CALENDAR DAYS	CALENDAR DAYS
	%	%	%	%

14 ACKNOWLEDGMENT OF AMENDMENTS (The Offeror acknowledges receipt of amendments to the SOLICITATION for Offerors and related documents numbered and dated)	AMENDMENT NO	DATE	AMENDMENT NO	DATE
	1	Dec-23-97	4	Jan-14-98
	2	Jan-07-98	5	Apr-13-98
	3	Jan-12-98		


15A NAME AND ADDRESS OF OFFEROR <b>Aero Systems Engineering, Inc 358 East Fillmore Avenue St. Paul, MN 55107</b>	CODE	FACILITY	16 NAME AND TITLE OF PERSON AUTH TO SIGN OFFER (Type or Print) <b>Leon E. Ring President and CEO</b>
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15B TELEPHONE NO (include area code) <b>(612) 227-7515</b>	15C CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE	17 SIGNATURE 	18 OFFER DATE <b>28 January 1998</b> JRE
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19 ACCEPTED AS TO ITEMS NUMBERED <b>See Clause C.1.</b>	20 AMOUNT <b>See Clause B.2.</b>	21 ACCOUNTING AND APPROPRIATION <b>PR: GGH.1684</b>
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22 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) ( )	23 SUBMIT INVOICES TO ADDRESS SHOWN IN <b>(4 copies unless otherwise specified)</b>	ITEM
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24 ADMINISTERED BY (if other than item 7) CODE	25 PAYMENT WILL BE MADE BY <b>Financial Management Office Langley Research Center, MS 175 Hampton, VA 23681-0001</b>
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26 NAME OF CONTRACTING OFFICER (Type or Print) <b>ROSEMARY C. FROEHLICH</b>	27 UNITED STATES OF AMERICA  (Signature of Contracting Officer)	28 AWARD DATE <b>4/30/98</b>
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## PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

## B.1 SUPPLIES AND/OR SERVICES TO BE FURNISHED

The Contractor shall, to the extent specified herein, furnish all personnel, facilities, services, supplies, equipment and materials necessary to provide complete systems engineering of mechanical, fluid, and automation systems for research facilities, including design, development, fabrication, installation, integration, and activation as specified in Delivery Orders (DOs) issued pursuant to Clause G.6, entitled "Procedures for Issuing Delivery Orders." The types of work to be performed under such DOs is limited to the types of work incorporated by Clause C.1, Statement of Work

## B.2 INDEFINITE DELIVERY CONTRACT

Pursuant to the Federal Acquisition Regulation (FAR) Parts 16.501-2 and 16.504, this contract is defined as an indefinite quantity type. The contract provides for an indefinite quantity, within stated limits of supplies or services to be furnished during a fixed period, with deliveries or performance to be scheduled by placing orders with the Contractor. The total minimum and maximum dollar value of supplies or services to be acquired under the contract are set forth below

Contract Minimum: The Government will issue DOs under this contract which provide for a minimum of \$0 for the 5-year period of performance.

Contract Maximum: The Government issued DOs under this contract shall not exceed a maximum of \$38,000,000.

## B.3 CONTRACT FUNDING INFORMATION

Section I Clause 52.232.22, Limitation of Funds (APR 1984) may apply individually to Delivery Orders issued under this contract.

In accordance with the Limitation of Funds clause, each cost-type order shall specify the total amount allotted by the Government for purposes of payment of cost, exclusive of fee. In addition, each cost-type delivery order which includes fee shall specify an additional amount as obligated for payment of fee.

## B.4 DELIVERY ORDER TYPE

Delivery order(s) will be issued on either a firm fixed price (FFP) basis or cost plus fixed fee (CPFF) basis.

## B.5 CONSIDERATION

- (a) The total fixed price will be set forth on individual FFP delivery orders.
- (b) The total estimated cost and fixed fee will be set forth on individual CPFF delivery orders

**SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT****C.I STATEMENT OF WORK - SYSTEMS ENGINEERING FOR RESEARCH FACILITY INTEGRATED SYSTEMS (SERFIS)****Part I - General****1.0 Background**

Langley Research Center possesses a wide variety of unique aeronautical/ aerospace research facilities and systems. A continual rehabilitation program ensures that these facilities are well maintained and capable of providing state-of-the-art testing. New research equipment and systems are also periodically developed to expand the Center's test capabilities. Key elements of these activities are the development of enabling technologies and the adaptation of existing technologies to specialized mechanical, fluid, and automation components and subsystems and the integration of these subsystems into complete research systems. The integration frequently involves existing systems and facilities. The integrated systems must provide precise control of facility parameters, automation of normal operator functions, high reliability, and low maintenance cost.

**2.0 Standards and Constraints**

All designs, material selections, drawings, specifications, and other documentation produced under this contract shall conform to nationally accepted codes and standard practices. This shall include drawing requirements as contained in DOD-STD-100 and software requirements as contained in NASA-STD-2100-91. The Contractor shall provide all computer-generated drawings in AutoCAD, release 14 or later format.

Software development and assurance shall be in accordance with LHB 5300.4, Software Quality Assurance Handbook.

The Contractor shall visit the site as necessary to fully understand constraints and existing conditions for each DO and discuss the details of the work to be performed with the Contracting Officer's Technical Representative (COTR) and Technical Project Engineer (TPE).

Where appropriate, specific standards and constraints will be included in each DO

**Part II - Scope of Work****1.0 General**

The Contractor shall provide complete systems engineering of mechanical, fluid, and automation systems for research facilities including design, development, fabrication, installation, integration, testing, and activation.

Specific requirements, including performance metrics, will be included in each DO. DOs will require complete engineering expertise and experience in order to accomplish work in the following areas:

**1.1 Mechanical Equipment and Systems**

The Contractor shall provide design and fabrication related engineering services for specialized mechanical research equipment and systems. Components include precision mechanisms and mechanical drives; hydraulic, pneumatic, and electric actuators; mechanical structures, including machine frames (plane and three-dimensional trussed); static and dynamic support structures for machinery; walled structures; vacuum and pressure vessels; heat transfer devices; and integrated systems. Components will be subjected to a variety of environments including cryogenic and elevated temperatures (-450°F to 3500°F) which may require active heating or cooling subsystems. Additional

environments which require application of specialized knowledge include high pressures (up to 8000 psig) oxygen and hydrogen rich environments specialty gases and fluids high vibration and noise and a full range of aerodynamic flow conditions ranging from low-subsonic to hypersonic speeds

The Contractor shall provide fabrication of research equipment and related systems per completed final designs and applicable standards and constraints. Responsibilities will include purchase of materials, components and subsystems, machining of structural and mechanical components, assembly of components and subsystems, quality assurance inspection of materials, components, subsystems, and systems, performance demonstration, and updates of design drawings to reflect as-built conditions.

The Contractor shall provide precision machining of complex contoured and mating surfaces, validation of contours and dimensions, weldment of structural and pressurized components, non-destructive examination of fabricated components and raw materials, and specialized processing such as plating, furnace brazing, surface hardening, and electro-forming. Materials will include common engineering materials as well as difficult to fabricate aerospace materials such as Inconel, high strength maraging steels, precipitation hardening steels, titanium, and advanced composites. Completed components and systems will include model support, injection, and positioning systems; wind tunnels and components (e.g. nozzles, diffusers, screens, turning vanes, turbine blades, actuators, and test cells); flow survey devices; structural test systems, and robotics.

Critical components will require complete documentation of engineering design and analyses, material certification, fabrication procedures, verification of as-fabricated mechanical properties, testing, and demonstration of functional performance. When specified, the Contractor shall provide specialized design and analyses including solid modeling, finite element structural and thermal analysis, mechanism simulation, and fracture mechanics. The specialized design and analyses may require proficiency with the software programs FLUENT, FLUENT/UNS, PATRAN, NASTRAN, Pro/Engineer®, Pro/Mechanica, MathCAD®, Maple, Matlab®, and Mathematica®, or equivalent.

## **1.2 Fluid Systems and Components**

The Contractor shall provide design and fabrication of specialized research fluid systems and equipment. Components will include specialized valving, piping, heat exchangers, dryers, separators, compressors, filters, blowers, vacuum pumps, refrigeration systems, instrumentation, and control systems. Components and systems will handle hard vacuum to high pressures, cryogenic and elevated temperatures, and specialty gases (e.g. oxygen, hydrogen, pyrophoric gases, heavy gases, and corrosive and toxic gases and fluids). The design of components, systems, and fluids requires expertise knowledge in thermodynamics, fluid and gas mechanics, material compatibility, and safety precautions required for high energy systems. Completed equipment and systems will include high-speed and low-speed wind tunnels (closed circuit and blow down); plasma jets; thermal systems; high vacuum systems; cryogenic systems; high and low pressure gas systems; process heat exchangers and specialized cooling systems; heavy gas reclamation systems; research support utilities, such as high pressure steam; hydraulic and pneumatic systems; and associated control systems.

The Contractor shall provide fabrication of equipment and related systems per completed final designs and applicable standards and constraints. Responsibilities will include specification and purchase of components and subsystems; fabrication of pressure vessels, heat exchangers, valve bodies and specialized components; assembly of all components and subsystems; subsystem checkout; and updates to drawings and documentation to reflect as-built and assembled configurations.

Critical components will require complete documentation of engineering design and analyses, material and component certification, fabrication and cleaning procedures, as-fabricated and assembled configuration, and demonstration of functional performance. When specified, the Contractor shall provide specialized analyses including computational fluid mechanics and process control simulation.

These analyses may require proficiency with the software programs CAESAR II PULS and AutoPIPE or equivalent

### **1.3 Facility Automation Systems**

The Contractor shall provide development of research facility automation systems from concept through activation. Development includes system requirements specification and analysis facility simulation, control strategy formulation and analysis; complete hardware/software specification and design: software implementation; system installation; hardware/software integration: system validation using facility simulations: on-site systems integration and checkout: and activation items including system tuning, acceptance testing, performance analysis, and facility personnel training. Efforts will require expertise in the following disciplines: Controls Engineering, Software Engineering, Computer Engineering, and Electrical / Electronics Engineering.

Systems will provide repeatable, precise, stable, multi-variable control of facility parameters and automation of normal operator functions. Typical systems involve operator workstations networked with embedded microcomputers that evoke responses in field equipment directly or through analog / digital controllers. These systems employ real-time operating systems at the microcomputer level to ensure deterministic responses to time-critical input events. In some cases, systems interface with Programmable Logic Controllers (PLCs) which provide primary safety functions or support automatic staging up and down of primary systems (such as fan drives) and auxiliary systems.

Facility simulation includes generation of linear and non-linear mathematical models of facility plant equipment using digital simulation programs such as Matlab® and Simulink®; validation of mathematical models using facility operational data; and characterization of facility processes. Related activities include development of control strategies based on conventional methods and newer technologies such as fuzzy logic and neural networks; implementation and verification of control algorithms suitable for the target hardware; and validation of actual hardware and software components prior to installation at the facility.

Software implementation will require using cross-development and self-hosted computer-based tools (e.g. compilers, linkers, loaders, debuggers, translators, graphical user interface builders, etc.) to create facility control and operator interface applications. At least two software development environments will be used: EPICS (Experimental Physics and Industrial Control System) and Labview®. EPICS is a software development and run-time environment originated by the Department of Energy. The Government will furnish the EPICS software to Contractors for DOs requiring its use. Labview® is a commercially-available, graphical programming environment which is compatible with EPICS. Software which supports automation of normal operator functions will involve prototyping and development of operator display layouts with special consideration for ease of use and visual ergonomics. Coding of controls application software in a high level language, such as C, C++, or FORTRAN will be required. The Contractor shall have specialized knowledge of real-time software development.

## **Part III - Contractor Tasks**

### **1.0 Special Studies and Reports**

The Contractor shall perform engineering analyses including feasibility studies, technology assessments, trade-off studies, third-party reviews, and failure analyses. The Contractor shall prepare reports which document studies and analyses and provide formal and informal briefings.

### **2.0 Requirements Definition and Analysis**

The Contractor shall be responsible for derivation of system requirements from basic information supplied by researchers; analysis of system requirements with respect to subsystem and integrated systems concepts, cost, schedule, benefit, risk, feasibility, operability, maintainability, reliability,

and related considerations and allocation of requirements to hardware and software. The Contractor may be required to participate in Preliminary Requirements Reviews.

### **3.0 Preliminary Engineering Reports**

The Contractor shall prepare Preliminary Engineering Reports (PER) for designated projects. Such preparation shall include all necessary engineering activities to provide a formal NASA PER. Each PER shall provide the basis for preparing final design, specifications, and cost estimates for implementation of planned projects and shall conform to the NASA Facility Project Implementation Handbook.

### **4.0 Design**

#### **4.1 Conceptual Designs**

The Contractor shall be responsible for obtaining data upon which to develop design concepts, performing preliminary analyses and studies, and preparing sketches, diagrams, layout plans, preliminary cost estimates, and preliminary development schedules. The Contractor may be required to participate in Conceptual Design Reviews.

#### **4.2 Preliminary Designs**

The Contractor shall be responsible for development of preliminary drawings and critical analyses; identification of long-lead procurement items; refined cost estimates and schedules; detailed plans for completion of final design; and initial plans for procurement, fabrication, installation, integrated systems testing, and activation of systems designed. The Contractor shall prepare and deliver presentations at Preliminary Design Reviews.

#### **4.3 Final Designs**

The Contractor shall be responsible for producing final designs based on the functional and technical requirements, while remaining within the project scope, schedule, and budgetary parameters. Final designs shall include all documents necessary for the system development, including engineering analyses, drawings, specifications, detailed cost estimates, fabrication and assembly schedules, and associated supporting documentation. Final designs shall conform to the NASA Facility Project Implementation Handbook.

The Contractor shall be responsible for furnishing complete automation system designs which integrate hardware and software elements to achieve required system functionality. System designs shall include new drawings; redlined facility drawings; device lists; control error analyses; timing analyses; descriptions which cover system theory of operation, subsystem interfaces, mode/state transition logic, operator screen layouts and functions; and supporting documentation. Hardware designs shall include architecture diagrams, arrangement diagrams, interconnection diagrams, wiring and cabling diagrams, parts lists, demolition diagrams, installation procedures, and supporting documentation. Software designs shall include requirements traceability matrices, architecture diagrams, data flow diagrams, control flow diagrams, module descriptions, and supporting documentation. Software designs involving PLC hardware shall include logic diagrams in lieu of data flow and control flow diagrams.

Drawings and specifications shall be completely detailed. The Contractor shall review all engineering calculations and drawings and shall indicate so on the respective documents. It shall be the responsibility of the Contractor to provide accurate, error-free final designs. The Contractor shall prepare and deliver presentations at Critical Design Reviews.

## 5.0 Development

### 5.1 Fabrication

The Contractor shall provide fabrication of research equipment and related systems per approved final designs and applicable standards and constraints. Responsibilities will include purchases of materials, components, and subsystems; machining of structural and mechanical components; assembly of all components needed for system validation; quality assurance inspection of materials, components, subsystems, and systems; and modifications to design drawings and affected facility drawings to reflect as-built conditions.

The Contractor shall provide electronic fabrication including purchase of components and subsystems; electronic systems integration; fabrication of control consoles; fabrication of cabling, assemblies, and all components needed for system interface to new and existing facility hardware; quality assurance inspection of components, assemblies, subsystems, and systems; and modifications to design drawings and affected facility drawings to reflect as-built conditions.

### 5.2 Software Implementation

The Contractor shall furnish all software necessary to provide fully operational research mechanical, fluid, and automation systems. Responsibilities include preparation of software implementation plans; purchase of operating systems, device drivers, network drivers, development tools, software configuration management tools, and diagnostic tools; development of applications for operator interfaces, automatic test sequencing, process control and monitoring, data acquisition and logging, inter-system data transfer, system performance monitoring, and troubleshooting aids; prototyping of operator screen layouts; integration of application software modules and programs; establishing appropriate priorities and execution speeds for application programs in order to achieve required data throughput, operator display update rates, and input response times; testing of software on both development system and target hardware for conformance to specifications; and documentation of source code and procedures required to rebuild, modify, and install application software.

### 5.3 Component / System Validation

The Contractor shall validate the operation of research equipment and related systems prior to installation. Responsibilities include tests which show compliance with requirements (e.g. power-on/off, emergency cutoff, load capacity, and range of motion); and demonstration of manual operation to facility users.

The Contractor shall validate target electronic hardware and software functions prior to installation. Responsibilities include system power-up; software installation on target hardware; validation testing using simulation hardware/software to confirm appropriateness of software / hardware design and control schemes; and demonstrations of operational interfaces and general system operations to facility personnel and research customers.

## 6.0 Installation

### 6.1 Installation Management

The Contractor shall provide technical support and coordination associated with installation. The Contractor shall coordinate with **NASA** project managers during the pre-installation and installation phases by reviewing and making appropriate recommendations regarding specifications and drawings, shop drawings, submittals, schedules, cost estimates, safety plans, engineering changes, and tests. The Contractor shall be responsible for preparing installation plans, coordinating site work with cognizant facility personnel, and maintaining up-to-date project-related drawings.



## **6.2 Site Work**

The Contractor shall perform on-site construction as necessary to support installation of research equipment and systems in accordance with approved designs and standard practices

## **6.3 System installation and Checkout**

The Contractor shall be responsible for removing existing equipment and associated wiring and cables; installation of new research mechanical, fluid, and automation equipment; interconnecting new mechanical, fluid, and automation equipment with power sources, field devices, and other research equipment; performing initial power-up of newly installed mechanical, fluid, and automation equipment; confirming proper operation of new research equipment and affected subsystems; and providing complete documentation of new systems including operator's manuals, software manuals, maintenance manuals, system test results, and as-built drawings. The Contractor may also be required to participate in a formal Integrated System Review.

## **7.0 System Integration and Activation**

The Contractor shall perform integration, testing, and activation of research mechanical, fluid, and automation systems and components with new and existing systems.

### **7.1 integrated System Testing**

The Contractor shall plan, conduct, and document integrated system tests. Responsibilities will include developing comprehensive test procedures; performing system level checkout of all affected facility operations including tests throughout the facility envelope; diagnosing, correcting, and repeating failed test items; documenting test results in formal reports; and tuning control systems to achieve required system performance.

### **7.2 Activation**

The Contractor shall provide research mechanical, fluid, and automation systems activation. Responsibilities will include preparing and conducting training for facility and maintenance personnel; collecting and analyzing system operational data in order to recommend performance enhancement measures; and providing technical support within 24-hours of notification of need. The Contractor may also be required to participate in a formal Operational Readiness Review.

## **8.0 Maintenance**

The Contractor shall provide system maintenance. Responsibilities include maintaining and enhancing automation software; monitoring system performance; assessing wear and performance degradation; and retuning of mechanical, fluid, and control systems; troubleshooting; and providing on-site emergency maintenance/repair within 24-hours of notification of need.

## **SECTION D - PACKAGING AND MARKING**

### **D.1 PACKING, PACKAGING AND MARKING**

(a) The Contractor shall notify the Contracting Officer three work days prior to the shipment of any hardware. All hardware shall be packaged as to eliminate any possible damage that could occur during shipping. All shipments shall be conducted with a creditable firm that is capable of tracking and/or tracing the shipment in event that any hardware should become lost during shipment. The Contractor shall identify lifting points on the hardware and shall specify any special handling requirements.

(b) The Contractor shall preserve, pack, and mark for shipment all items deliverable under this contract in accordance with good commercial practices and in accordance with instructions that may be specified

by the Government in authorized delivery orders. Shipments shall be preserved, packed and marked to ensure both acceptance by common carrier and safe transportation at the most economical rate(s)

(c) Markings for reports and other documentation shall be as set forth in Section J. Exhibit A Contract Documentation Requirements

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

(e) The Contractor shall place identical requirements in all subcontracts.

## SECTION E - INSPECTION AND ACCEPTANCE

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

Final inspection and acceptance of all items specified for delivery under this contract, including delivery orders, shall be accomplished by the Contracting Officer or his duly authorized representative at destination

## SECTION F - DELIVERIES OR PERFORMANCE

### F.1 F.O.B. DESTINATION (FAR 52.247-34) (NOV 1991)

(a) The term "f.o.b. destination," as used in this clause, means --

(1) Free of expense to the Government, on board the carrier's conveyance, at a specified delivery point where the consignee's facility (plant, warehouse, store, lot, or other location to which shipment can be made) is located; and

(2) Supplies shall be delivered to the destination consignee's wharf (if destination is a port city and supplies are for export), warehouse unloading platform, or receiving dock, at the expense of the Contractor. The Government shall not be liable for any delivery, storage, demurrage, accessorial, or other charges involved before the actual delivery (or "constructive placement" as defined in carrier tariffs) of the supplies to the destination, unless such charges are caused by an act or order of the Government acting in its contractual capacity. If rail carrier is used, supplies shall be delivered to the specified unloading platform of the consignee. If motor carrier (including "piggyback") is used, supplies shall be delivered to truck tailgate at the unloading platform of the consignee, except when the supplies delivered meet the requirements of Item 568 of the National Motor Freight Classification for "heavy or bulky freight." When supplies meeting the requirements of the referenced Item 568 are delivered, unloading (including movement to the tailgate) shall be performed by the consignee, with assistance from the truck driver, if requested. If the Contractor uses rail carrier or freight forwarded for less than carload shipments, the Contractor shall ensure that the carrier will furnish tailgate delivery, when required, if transfer to truck is required to complete delivery to consignee.

(b) The Contractor shall --

(1)(i) Pack and mark the shipment to comply with contract specifications; or

(ii) In the absence of specifications, prepare the shipment in conformance with carrier requirements;

(2) Prepare and distribute commercial bills of lading;

(3) Deliver the shipment in good order and condition to the point of delivery specified in the contract;

(4) Be responsible for any loss of and/or damage to the goods occurring before receipt of the shipment by the consignee at the delivery point specified in the contract;

(5) Furnish a delivery schedule and designate the mode of delivering carrier; and

(6) Pay and bear all charges to the specified point of delivery.

F.2 F.O.B. DESTINATION. WITHIN CONSIGNEE'S PREMISES (FAR 52.247-35) (APR 1984)

(a) The term "f.o.b. destination. within consignee's premises." as used in this clause. means free of expense to the Government delivered and laid down within the doors of the consignee's premises. including delivery to specific rooms within a building if so specified.

(b) The Contractor shall -

- (1) (i) Pack and mark the shipment to comply with contract specifications. or
  - (ii) In the absence of specifications. prepare the shipment in conformance with carrier requirements;
- (2) Prepare and distribute commercial bills of lading;
- (3) Deliver the shipment in good order and condition to the point of delivery specified in the contract;
- (4) Be responsible for any loss of and/or damage to the goods occurring before receipt of the shipment by the consignee at the delivery point specified in the contract;
- (5) Furnish a delivery schedule and designate the mode of delivering carrier: and
- (6) Pay and bear all charges to the specified point of delivery.

**NOTE: THE USE OF THE F.1 OR F.2 CLAUSE WILL BE DETERMINED BY THE REQUIREMENTS SET FORTH IN THE INDIVIDUAL DOS. CONTRACT LEVEL DELIVERABLES ARE SUBJECT TO CLAUSE 52.247-34.**

F.3 DELIVERY

The documentation, hardware and reports required by each DO produced under this contract shall be delivered in accordance with the schedule specified.

The reports and documentation required by Section J. Exhibit A, Contract Documentation Requirements, shall be delivered at the times and to the places specified therein.

F.4 PERIOD OF PERFORMANCE (LaRC 52.211-91) (AUG 1997)

The period of performance of this contract shall be 60 months from the effective date of the contract.

F.5 PERIOD OF PERFORMANCE - DELIVERY ORDERS

(a) Pursuant to Section I Clause 52.216-18 Ordering (Oct. 1995), orders may be issued from contract award through two weeks prior to the end of the contract term.

(b) Any delivery order issued prior to the expiration of the period for issuance of delivery orders shall be completed, provided that the Contractor will not be required to perform any work beyond six (6) months after the period for issuance of delivery orders.

F.6 PLACE OF DELIVERY (LaRC 52.211-92) (OCT 1992)

Delivery shall be f.o.b. destination:

**As** specified in delivery orders

F.7 PLACE(S) OF PERFORMANCE (LaRC 52.211-98) (OCT 1992)

The place(s) of performance shall be:

The Contractor's and/or subcontractor's facility; and other sites as may be designated by the delivery order.

## F.8 NOTICE OF DELAY

If because of technical difficulties the Contractor becomes unable to complete the delivery order work at the time specified notwithstanding the exercise of good faith and diligent efforts in performing of the work called for under this delivery order the Contractor shall give the Contracting Officer written notice of the anticipated delay and the reasons for it. The notice and reasons shall be delivered promptly after the condition creating the anticipated delay becomes known to the Contractor but in no event less than 10 days before the completion date specified in this delivery order unless otherwise directed by the contracting Officer. When notice is given, the Contracting Officer may extend the time specified in the Schedule for such period as is deemed advisable.

SECTION G - CONTRACT ADMINISTRATION DATA

## G.1 DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE (NASA 1852.227-72) (JUL 1997)

(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	212	NASA, Langley Research Center Hampton, VA 23681-0001
Patent Representative	212	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 1827.305-370 of the NASA FAR Supplement.

## G.2 SUBMISSION OF REQUESTS FOR PROGRESS PAYMENTS (NASA 1852.232-82) (MAR 1989)

The Contractor shall request progress payments in accordance with the Progress Payments clause by submitting to the Contracting Officer an original and two copies of Standard Form (SF) 1443, Contractor's Request for Progress Payment, and the Contractor's invoice (if applicable). The Contracting Officer's office is the designated billing office for progress payments for purposes of the Prompt Payment clause.

**NOTE: CLAUSE G.2 ABOVE IS APPLICABLE TO FIXED-PRICE DELIVERY ORDERS.**

## G.3 NASA CONTRACTOR FINANCIAL MANAGEMENT REPORTING (NASA 1852.242-73) (JUL 1997)

(a) The Contractor shall submit NASA Contractor Financial Management Reports on NASA Forms 533 in accordance with the instructions in NASA Policy Guidance (NPG) 9501.2, NASA Contractor Financial Management Reporting, and on the reverse side of the forms, as supplemented in the Schedule of this contract. The detailed reporting categories to be used, which shall correlate with technical and schedule

reporting shall be set forth in the Schedule Contractor implementation of reporting requirements under this clause shall include NASA approval of the definitions of the content of each reporting category and give due regard to the Contractor's established financial management information system

(b) Lower level detail used by the Contractor for its own management purposes to validate information provided to NASA shall be compatible with NASA requirements

(c) Reports shall be submitted in the number of copies at the time and in the manner set forth in the Schedule or as designated in writing by the Contracting Officer Upon completion and acceptance by NASA of all contract line items, the Contracting Officer may direct the Contractor to submit Form 533 reports on a quarterly basis only, report only when changes in actual cost incur, or suspend reporting altogether

(d) The Contractor shall ensure that its Form 533 reports include accurate subcontractor cost data in the proper reporting categories, for the reporting period

(e) If during the performance of this contract NASA requires a change in the information or reporting requirements specified in the Schedule, or as provided for in Paragraph (a) or (c) of this clause, the Contracting Officer shall effect that change in accordance with the Changes clause of this contract

**NOTE: CLAUSE G.3 ABOVE IS APPLICABLE TO COST TYPE DELIVERY ORDERS, SEE EXHIBIT A - CONTRACT DOCUMENTATION REQUIREMENTS.**

**G.4 CONTRACTOR REQUESTS FOR GOVERNMENT-OWNED EQUIPMENT  
(NASA 1852.245-70) (JUL 1997)**

(a) "Equipment," as used in this clause, means commercially available items capable of stand-alone use, including those to be acquired for incorporation into special test equipment or special tooling.

(b)(1) Upon determination of need for any Government-owned equipment item for performance of this contract, the Contractor shall provide to the Contracting Officer a written request justifying the need for the equipment and the reasons why Contractor-owned property cannot be used, citing the applicable FAR or contract authority for use of Government-owned equipment. Equipment being acquired as a deliverable end item listed in the contract or as a component for incorporation into a deliverable end item listed in the contract is exempt from this requirement.

(2) The Contractor's request shall include a description of the item in sufficient detail to enable the Government to screen its inventories for available equipment or to purchase equipment. For this purpose, the Contractor shall (i) prepare a separate DD Form 1419, DOD Industrial Plant Equipment Requisition, or equivalent format, for each item requested and (ii) forward it through the Contracting Officer to the Industrial Property Officer at the cognizant NASA installation at least 30 days in advance of the date the Contractor intends to acquire the item. Multiple units of identical items may be requested on a single form. Instructions for preparing the DD Form 1419 are contained in NASA FAR Supplement 1845.7102. If a certificate of nonavailability is not received within that period, the Contractor may proceed to acquire the item, subject to having obtained Contracting Officer consent, if required, and having complied with any other applicable provisions of this contract.

(c) Contractors who are authorized to conduct their own screening using the NASA Equipment Management System (NEMS) and other Government sources of excess property shall provide the evidence of screening results with their request for Contracting Officer consent. Requests to purchase based on unsuitability of items found shall include rationale for the determined unsuitability

**G 5 SUBMISSION AND PAYMENT OF VOUCHERS**

**A. Payment for Fixed-Price DOs**

NAS1-98090<sup>1</sup>. Public vouchers for fixed price delivery orders shall include a reference to this contract and the DO Number. The Contractor's taxpayer identification number shall be included on the invoice.

2. Individual DOs will provide for customary progress payments if the Contractor will not be able to bill for the first delivery of products, or other performance milestones, for four months, or more for small business, six months, or more for large business, or more and will make expenditures for

contract performance during the predelivery period that have a significant impact on the Contractor's working capital

3. Pursuant to Section I Clauses 52 232-1 Payments (APR 1984) and 52 232-16 Progress Payments (JUL 1991) Alternate 1 (AUG 1987), progress payments will be based on costs for the progress payment and liquidation rate indicated

4 Requests for progress payments will be in accordance with Clause 1852.232-82 entitled "Submission of Requests for Progress Payments (MAR 1989) as set forth in G 2 above

5 Payment for fixed price DOs for less than \$100,000 for small business. \$1,000,000 for large business will be made after delivery and acceptance of all deliverable items and completion of all delivery order requirements Progress payments are not authorized Partial payments may be authorized Partial payments, if authorized will be made on no more than a monthly basis for partial delivery of supplies accepted during that month

#### B. Payment for Cost Reimbursable DOs

1. Public vouchers for payment of cost and fee shall include a reference to this contract NAS1-98090 and the DO number. The Contractor's taxpayer identification number shall be included on the invoice.

2. Cost vouchers shall be submitted for approval through the cognizant DCAA office Fee vouchers shall be submitted for approval through the Contracting Officer.

3. The Contractor shall prepare vouchers as follows:

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

(b) Seven copies of SF 1034A, SF 1035A, or equivalent Contractor's attachment.

(c) The Contractor shall mark SF 1034A copies 1, 2, 3, 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 Project management office (when required by the NASA

Contracting Officer).

#### C. Invoice Address

The address as set forth below is the designated payment office for fixed-price, cost and fee vouchers for purposes of the Prompt Payment clause of this contract. The Contracting Officer's ~~ofc~~ is the designated billing office for fixed price progress payments for purposes of the Prompt Payment clause. Invoices shall be forwarded to the following address and marked with the contract number NAS1-98090 and the specific DO number.

NASA, Langley Research Center  
Attn: Financial Management Division, M/S 175  
Hampton, VA 23681-0001

## G.6 PROCEDURES FOR ISSUING DELIVERY ORDERS

A Delivery Orders will be issued on an Optional Form 347 (or a facsimile thereof) or on any other appropriate contractual instruments and issued by the Contracting Officer

B Individual DOs may be either fixed price or cost plus fixed fee

C. For DOs issued under multiple delivery order contracts, each awardee shall be provided a fair opportunity to be considered for each DO in excess of \$2,500 with the exceptions as specified in the following paragraph. (DOs for under \$2,500 may be placed with any of the awardees without competition.) In selecting the awardee with whom to place orders, the Contracting Officer will consider past performance on earlier tasks under the multiple award contract, quality of deliverables, cost control, price, cost, or other factors the Contracting Officer believes are relevant to the award of the DO to an awardee under the contract. Other factors may be evaluated such as the technical understanding of the requirement and the ability to meet the required schedule. The selection criteria will be set forth in each solicitation issued.

Awardees need not be given an opportunity to be considered for a particular DO in excess of \$2,500 under multiple DO contracts if the Contracting Officer determines that -

1. The agency need for such supplies or services is of such urgency that providing such opportunity would result in unacceptable delays;
2. Only one such Contractor *is* capable of providing such supplies or services required at the level of quality required because the supplies or services ordered are unique or highly specialized.
3. The DO should be issued on a sole-source basis in the interest of economy and efficiency as a logical follow-on to a DO already issued under the contract, provided that all awardees were given a fair opportunity to be considered for the original DO; or
4. It is necessary to place a DO to satisfy a minimum guarantee

D. The Contracting Officer need not contact each of the multiple contract awardees before selecting a DO awardee if there is information available to ensure that each multiple awardee is provided a fair opportunity to be considered for each DO .

E For those DOs which are competed among the multiple contract awardees, the Contracting Officer will provide a solicitation to each awardee and will request a quote or proposal by a common cut-off-date. The solicitation will include a Statement of Work or Specifications, including applicable drawings, required delivery date, any special instructions or provisions and selection criteria. The awardees will be requested to provide either a firm fixed price or estimated cost and fixed fee for the proposed DO (depending on whether the DO is to be fixed price or cost-type). For cost-type DOs, the awardees may be required to provide breakouts of the estimated labor hours or costs to perform the DO. In some cases, the awardees may be requested to provide a brief implementation plan for the DO.

F. Failure to perform certain DOs in accordance with the DO's terms may cause the Government to suffer damages. Conversely, early delivery on certain DOs may be of additional value to the Government. Such incentive/disincentive terms and liquidated damages will be specified in the solicitation for the DO.

G. In some cases, the Contracting Officer may issue delivery orders for conceptual designs to be performed by more than one awardee, with the selection for any subsequent DO for the detailed design to be based on the merits of the completed conceptual designs.

H. Delivery Orders may be issued orally, by facsimile or by electronic commerce methods.

I No protest under FAR Subpart 33.1 is authorized in connection with the issuance or proposed issuance of a DO under this DO contract except for a protest on the grounds that the DO increases the scope, period, or maximum value of the contract. In accordance with FAR 16.505(b)(4) Dr. Belinda Adams has been designated as the DO Ombudsman responsible for reviewing complaints from Contractors on DO contracts.

## G.7 CONTENTS OF DELIVERY ORDERS

A Delivery Orders will contain, as a minimum, the following information:

1. Date of DO and contract number NAS1-98090
2. Statement of Work or Specifications including applicable drawings
3. Deliverables
4. Completion date and/or delivery schedule
5. Place of delivery and delivery instructions
6. Accounting and appropriation data
7. Estimated cost (for cost-type DOs)
8. Fixed fee (if applicable, for cost-type orders)
9. Incremental funding
  - For Cost Type DOs
  - (a) Amount allotted for cost
  - (b) Additional amount obligated for payment of fee, if applicable
10. Fixed price (for fixed-price DOs)
11. Applicable special instructions or provisions
12. Government-furnished items

## SECTION H - SPECIAL CONTRACT REQUIREMENTS

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

Except for data contained on pages N/A, 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 15 Apr 98, upon which this contract is based.

### H.2 SECURITY PROGRAM/FOREIGN NATIONAL EMPLOYEE INVESTIGATIVE REQUIREMENTS (LaRC 52.204-91) (AUG 1997)

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, Office of Space Science and Aeronautics (Code IS). 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.

### H.3 WORK SCHEDULE--ON-SITE ONLY (LaRC 52.211-103) (JUL 1991)

In order that the necessary and proper inspection of the Contractor's work may be effectively accomplished, and to assure the availability of required Government interface, the Contractor shall schedule work performance hereunder so as to be compatible with the established workweek and hours of



work observed by the Government organization having cognizance over the work being performed which is 7 00 a m to 3 30 p m Monday through Friday

H.4 OBSERVATION OF REGULATIONS AND IDENTIFICATION OF CONTRACTOR'S EMPLOYEES (LaRC 52.211-104) (MAR 1992)

A Observation of Regulations--In performance of that part of the contract work which may be performed at Langley Research Center or other Government installation the Contractor shall require its employees to observe the rules and regulations as prescribed by the authorities at Langley Research Center or other installation

B. Identification Badges--At all times while on LaRC property, the Contractor shall require its employees, subcontractors and agents to wear badges which will be issued by the NASA Contract Badge and Pass Office, located at 1 Langley Boulevard (Building No. 1228). Badges shall be issued only between the hours of 6:30 a.m. and 4:30 p.m., Monday through Friday. Contractors will be held accountable for these badges, and may be required to validate outstanding badges on an annual basis with the NASA LaRC Security Office. Immediately after employee termination or contract completion. badges shall be returned to the NASA Contract Badge and Pass Office.

H.5 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 15 Apr 98 is hereby incorporated herein by reference.

H.6 EVIDENCE OF INSURANCE

Prior to performing under this contract, the Contractor shall submit to the Contracting Officer evidence of the insurance coverage required by the Section I NASA Clause 1852.228-75 entitled "Minimum Insurance Coverage" (such as a Certificate of Insurance or other confirmation).

H.7 VIRGINIA AND LOCAL SALES TAXES (LaRC 52.229-92) (APR 1992)

To perform this contract, the Contractor must be knowledgeable of relevant state and local taxes when making purchases of tangible personal property. The Contractor shall refrain from paying nonapplicable taxes or taxes where an exemption exists, but shall pay applicable taxes that are reimbursable pursuant to FAR 31.205-41, Taxes. Even though title to property purchased under this contract may pass to the Government and the price is reimbursable under contract cost principles, such transactions do not in themselves provide tax immunity to the Contractor. Therefore, within 30 days after the effective date of this contract, the Contractor shall request from the Virginia State Tax Commission a ruling on any tax exemptions that may be applicable to purchases made under this contract. The Contractor shall provide all facts relevant to the situation and shall pursue an interpretation of the law that is most favorable to both the Contractor and the Government.

H.8 COMMERCIAL COMPUTER SOFTWARE AND SYSTEMS

The Contractor warrants that the items or services acquired under this contract are required to include accurate processing of the date and date-related data including, but not limited to, calculating, comparing, sequencing, and the manipulation of data with dates prior to, through, and beyond January 1, 2000. This capability must be included in all hardware and software products delivered under this contract, or used to perform services under this contract, individually and in combination, and shall be transparent to the user. Hardware and software products provided under this contract, and used to perform services under this contract, shall individually, and in combination, be able to successfully transition into the Year 2000 with the correct system date, including leap year calculations, without human

intervention. Such products shall also provide correct results when moving forward and backward in time across the Year 2000 and subsequent years.

H.9 TERMINATION

The FAR clauses 52 249-1 Termination for Convenience of the Government (Fixed-Price)(Short Form) (APR 1984) 52 249-2 Termination for Convenience of the Government (Fixed-Price) (SEP 1996) 52 249-6, Termination (Cost-Reimbursement) (SEP 1996) and 52 249-8, Default (Fixed-Price Supply and Services) (APR 1984) apply to the contract as a whole and to each individual DO issued under this contract. Thus, an individual DO may be terminated either for default or for the convenience of the Government.

H.10 QUALITY MANAGEMENT SYSTEM (ISO-9000) REQUIREMENTS

No later than 12 months after award of the contract the Contractor shall be certified by a third-party registrar as compliant with the requirements of the current version of the International Organization for Standardization's "ISO 9001" Standard Series or the American National Institute/American Society for Quality Control's "Q9001 Series" and associated documentation. The Contractor shall maintain its registration during the contract term.

H.11 ADVANCE AGREEMENT ON INDIRECT RATES(S) (LaRC 52.231-90) (JUN 1988)

A. Notwithstanding the provisions of the Section I clause entitled "Allowable Cost and Payment," the Contractor will be reimbursed at the indirect ceiling rates specified below or the actual rates, whichever are less, for each of the Contractor's fiscal years applicable to this contract. The Contractor's fiscal year is January 1 to December 31. Any costs that are not reimbursed due to the ceilings shall be deemed unallowable costs. These unallowable costs shall not be recovered under this of any other Government contract.

<u>Indirect cost Pool</u>	<u>Ceiling Percentage</u>	<u>Allocations</u>
Labor Burden	[REDACTED]	
General & Administrative	[REDACTED]	

B. The above rate ceilings are predicated upon the bases listed above and the accounting practices and accounting system in effect on 28 January 1998. If the Contractor changes its accounting practices or accounting system in any way, the Contractor will immediately notify the Government. Within 30 days of such change the Contractor shall present to the Contracting Officer information that demonstrates that the change will not impact the allowable cost computed using the above rates or shall submit a proposal for adjustment of the ceilings so that the total costs allowable will not exceed the total costs that would have been allowable had the Contractor not changed its accounting practices or accounting system. In the event that the parties cannot agree on new ceilings using the Contractor's new accounting practices or system and the Contractor does not agree to return to the previous accounting practices and system, the Contracting Officer may equitably adjust the ceilings.

**NOTICE: THE FOLLOWING CLAUSES ARE APPLICABLE TO BOTH FIRM-FIXED PRICE DELIVERY ORDERS AND COST REIMBURSABLE DELIVERY ORDERS ISSUED UNDER THIS CONTRACT.**

PART II -CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

1.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE:

NOTICE: The following solicitation 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 Contractor Sales to the Government (JUL 1995)
52.203-7	Anti-Kickback Procedures (JUL 1995)
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (JAN 1997)
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity (JAN 1997)
52.203-12	Limitation on Payments to Influence Certain Federal Transactions (JUN 1997)
52.204-4	Printing/Copying Double-Sided on Recycled Paper (JUN 1996)
52.209-6	Protecting the Government's Interest when Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (JUL 1995)
52.211-5	Material Requirements (OCT 1997)
52.211-15	Defense Priority and Allocation Requirements SEP 1990)
52.215-2	Audit and Records--Negotiation (AUG 1996)
52.215-26	Integrity of Unit Prices (JAN 1997)
52.215-27	Termination of Defined Benefit Pension Plans MAR 1996)
52.215-33	Order of Precedence (JAN 1986)

52.215-42	Requirements for Cost and Pricing Data or Information Other Than Cost or Pricing Data - Modifications (JAN 1997)
52.219-8	Utilization of Small, Small Disadvantaged, and Women-Owned Small Business Concerns (JUN 1997)
52.219-9	Small, Small Disadvantaged, and Women-Owned Small Business Subcontracting Plan (AUG 1996) Alternate II (MAR 1996)
52.219-16	Liquidated Damages--Subcontracting Plan (OCT 1995)
52.222-1	Notice to the Government of Labor Disputes (FEB 1997)
52.222-20	Walsh-Healy Public Contracts Act (DEC 1996)
52.222-26	Equal Opportunity (APR 1984)
52.222-28	Equal Opportunity Preaward Clearance of Subcontracts (APR 1984)
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)
52.223-5	Pollution Prevention and Right-To-Know Information (MAR 1997)
52.223-6	Drug-Free Workplace (JAN 1997)
52.223-14	Toxic Chemical Release Reporting (OCT 1996)
52.225-9	Buy American Act - Trade Agreements - Balance of Payments Program (JAN 1996)
52.225-11	Restrictions on Certain Foreign Purchases (OCT 1996)
52.227-1	Authorization and Consent (JUL 1995)--Alternate I (APR 1984)
52.227-2	Notice and Assistance Regarding Patent and Copyright Infringement (AUG 1996)
52.227-11	Patent Rights--Retention by the Contractor (Short Form) (JUN 1989)--as modified by NASA FAR Supplement 1852.227-11
52.232-9	Limitation on Withholding of Payments (APR 1984)
52.232-17	Interest (JUN 1996)
52.232-23	Assignment of Claims (JAN 1986)
52.232-25	Prompt Payment (JUN 1997)
52.232-33	Mandatory Information for Electronic Funds Transfer Payment (AUG 1996)
52.233-1	Disputes (OCT 1995)--Alternate I (DEC 1991)
52.233-3	Protest After Award (AUG 1996)
52.237-2	Protection Of Government Buildings, Equipment, And Vegetation (APR 1984)
52.242-13	Bankruptcy (JUL 1995)
52.244-5	Competition in Subcontracting (DEC 1996)
52.244-6	Subcontracts for Commercial Items and Commercial Components (OCT 1995)
52.246-24	Limitation of Liability--High-Value Items (FEB 1997)
52.248-1	Value Engineering (MAR 1989)
52.253-1	Computer Generated Forms (JAN 1991)

## NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBERTITLE AND DATE

<del>52</del> 52.208-81	Restrictions on Printing and Duplicating (AUG 1993)
1852.219-74	Use of Rural Area Small Businesses (SEP 1990)
<del>52</del> 52.219-75	Small, Small Disadvantaged, and Women-Owned Small Business Subcontracting Reporting (JUL 1997)
1852.219-76	NASA 8 Percent Goal (JUL 1997)
<del>52</del> 52.223-70	Safety and Health (MAR 1997)
1852.223-74	Drug and Alcohol-Free Workforce (MAR 1996)
<del>52</del> 52.227-70	New Technology (JUL 1995)

- 1852.227-86 Commercial Computer Software--Licensing (DEC 1987)
- 1852.228-75 Minimum Insurance Coverage (OCT 1988)
- 1852.243-71 Shared Savings (MAR 1997)

1.2 CLAUSES IN FULL TEXT

The clauses listed below follow in full text

- 52.211-11 Liquidated Damages--Supplies Services or Research and Development (APR 1984)
- 52.216-18 Ordering (OCT 1995)
- 52.216-19 Order Limitations (OCT 1995)
- 52.216-22 Indefinite Quantity (OCT 1995)
- 52.223-3 Hazardous Material Identification and Material Safety Data (NOV 1991) Alternate I (JUL 1995)
- 52.223-11 Ozone Depleting Substances (JUN 1996)
- 52.227-14 Rights in Data - General (JUN 1987) Alternate II (JUN 1987) and Alternate III (JUN 1987)--as modified by NASA FAR Supplement 1852 227-14
- 52.252-2 Clauses Incorporated by Reference (JUN 1988)
- 52.252-6 Authorized Deviations in Clauses (APR 1984)
- 1852.204-76 Security Requirements for Unclassified Automated Information Resources (SEP 1993)
- 1852.215-84 Ombudsman (OCT 1996)
- 1852.246-72 Material Inspection and Receiving Report (JUN 1995)

1.3 LIQUIDATED DAMAGES - SUPPLIES, SERVICES, OR RESEARCH AND DEVELOPMENT (FAR 52.211-11) (APR 1984)

- (a) If the Contractor fails to deliver the supplies or perform the services within the time specified in this contract, or any extension. the Contractor shall, in place of actual damages, pay to the Government as fixed, agreed, and liquidated damages, for each calendar day of delay the sum of TBD.
- (b) Alternatively, if delivery or performance is so delayed, the Government may terminate this contract in whole or in part under the Default-Fixed-Price Supply and Service clause in this contract and in that event, the Contractor shall be liable for fixed, agreed, and liquidated damages accruing until the time the Government may reasonably obtain delivery or performance of similar supplies or services. The liquidated damages shall be in addition to excess costs under the Termination clause.
- (c) The Contractor shall not be charged with liquidated damages when the delay in delivery or performance arises out of causes beyond the control and without the fault or negligence of the Contractor as defined in the Default-Fixed-Price Supply and Service clause in this contract.

**NOTE: THE ABOVE CLAUSE MAY APPLY TO CERTAIN DOs IN ACCORDANCE WITH FAR 11.502.**

1.4 ORDERING (FAR 52.216-18) (OCT 1995)

- (a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from contract award date through two weeks prior to the end of the contract term.
- (b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.
- (c) If mailed, a delivery order or task order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

## 1.5 ORDER LIMITATIONS (FAR 52.216-19) (OCT 1995)

(a) Minimum order When the Government requires supplies or services covered by this contract in an amount of less than \$1,000, the Government is not obligated to purchase nor is the Contractor obligated to furnish those supplies or services under the contract

Maximum order The Contractor is not obligated to honor--

(1) Any order for a single item in excess of \$1 500 000

(2) Any order for a combination of items in excess of \$5 000 000 or

(3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (1) or (2) above

(c) If this is a requirements contract (i.e. includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)) the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) above

(d) Notwithstanding paragraphs (b) and (c) above the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 5 days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source

## 1.6 INDEFINITE QUANTITY (FAR 52.216-22) (OCT 1995)

(a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.

(b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."

(c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period: provided, that the Contractor shall not be required to make any deliveries under this contract after 6 months after period for issuance of DOs.

1.7 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA  
(FAR 52.223-3) (JAN 1997)

(a) "Hazardous material," as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The Offeror must list any hazardous material, as defined in Paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material [If none, insert None]

*None*

Identification No

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful Offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in Paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful Offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful Offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under Paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate, and disclose any data to which this clause is applicable. The purposes of this right are to--

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with Subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

1.8 OZONE-DEPLETING SUBSTANCES (FAR 52.223-11) (JUN 1996)

(a) Definition. "Ozone-depleting substance", as used in this clause, means any substance designated as Class I by the Environmental Protection Agency (EPA) (40 CFR Part 82), including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or any substance designated as Class II by EPA (40 CFR Part 82), including but not limited to hydrochlorofluorocarbons.

(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U S C 7671j (b) (c) and (d) and 40 CFR Part 82 Subpart E, as follows

Warning:

Contains (or manufactured with if applicable) \* \_\_\_\_\_ a substance(s) which harms public health and environment by destroying ozone in the upper atmosphere

• The Contractor shall insert the name of the substance(s).

1.9 RIGHTS IN DATA - GENERAL (FAR 52.227-14) (JUN 1987) ALTERNATE II (JUN 1987) AND ALTERNATE III (JUN 1987) AS MODIFIED BY NASA FAR SUPPLEMENT 1852.227-14

(a) Definitions.

"Computer software," as used in this clause, means computer programs, computer data bases, and documentation thereof.

"Data," as used in this clause, means recorded information, regardless of form or the media on which it may be recorded. The term includes technical data and computer software. The term does not include information incidental to contract administration, such as financial, administrative, cost or pricing, or management information.

"Form, fit, and function data," as used in this clause, means data relating to items, components, or processes that are sufficient to enable physical and functional interchangeability, as well as data identifying source, size, configuration, mating, and attachment characteristics, functional characteristics, and performance requirements; except that for computer software it means data identifying source, functional characteristics, and performance requirements but specifically excludes the source code, algorithm, process, formulae, and flow charts of the software.

"Limited rights," as used in this clause, means the rights of the Government in limited rights data as set forth in the Limited Rights Notice of subparagraph (g)(2) if included in this clause.

"Limited rights data," as used in this clause, means data (other than computer software) that embody trade secrets or are commercial or financial and confidential or privileged, to the extent that such data pertain to items, components, or processes developed at private expense, including minor modifications thereof.

"Restricted computer software," as used in this clause, means computer software developed at private expense and that is a trade secret; is commercial or financial and is confidential or privileged; or is published copyrighted computer software; including minor modifications of such computer software.

"Restricted rights," as used in this clause, means the rights of the Government in restricted computer software, as set forth in a Restricted Rights Notice of subparagraph (g)(3) if included in this clause, or as otherwise may be provided in a collateral agreement incorporated in and made part of this contract, including minor modifications of such computer software.

"Technical data," as used in this clause, means data (other than computer software) which are of a scientific or technical nature.

"Unlimited rights," as used in this clause, means the right of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so.

(b) Allocation of rights.

(1) Except as provided in paragraph (c) of this clause regarding copyright, the Government shall have unlimited rights in -

- (i) Data first produced in the performance of this contract;
- (ii) Form, fit, and function data delivered under this contract;
- (iii) Data delivered under this contract (except for restricted computer software) that constitute manuals or instructional and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under this contract; and
- (iv) **All** other data delivered under this contract unless provided otherwise for limited rights data or restricted computer software in accordance with paragraph (g) of this clause.

(2) The Contractor shall have the right to -



(i) Use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Contractor in the performance of this contract, unless provided otherwise in paragraph (d) of this clause:

(ii) Protect from unauthorized disclosure and use those data which are limited rights data or restricted computer software to the extent provided in paragraph (g) of this clause

(iii) Substantiate use of, add or correct limited rights, restricted rights, or copyright notices and to take other appropriate action, in accordance with paragraphs (e) and (f) of this clause and

(iv) Establish claim to copyright subsisting in data first produced in the performance of this contract to the extent provided in subparagraph (c)(1) of this clause.

(c) Copyright.

(1) Data first produced in the performance of this contract. Unless provided otherwise in paragraph (d) of this clause, the Contractor may establish, without prior approval of the Contracting Officer, claim to copyright subsisting in scientific and technical articles based on or containing data first produced in the performance of this contract and published in academic, technical or professional journals, symposia proceedings or similar works. The prior, express written permission of the Contracting Officer is required to establish claim to copyright subsisting in all other data first produced in the performance of this contract. When claim to copyright is made, the Contractor shall affix the applicable copyright notices of 17 U.S.C. 401 or 402 and acknowledgment of Government sponsorship (including contract number) to the data when such data are delivered to the Government, as well as when the data are published or deposited for registration as a published work in the U.S. Copyright Office. For data other than computer software the Contractor grants to the Government, and others acting on its behalf, a paid-up, nonexclusive, irrevocable worldwide license in such copyrighted data to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on behalf of the Government. For computer software, the Contractor grants to the Government and others acting in its behalf, a paid-up nonexclusive, irrevocable worldwide license in such copyrighted computer software to reproduce, prepare derivative works, and perform publicly and display publicly by or on behalf of the Government.

(2) Data not first produced in the performance of this contract. The Contractor shall not, without prior written permission of the Contracting Officer, incorporate in data delivered under this contract any data not first produced in the performance of this contract and which contains the copyright notice of 17 U.S.C. 401 or 402, unless the Contractor identifies such data and grants to the Government, or acquires on its behalf, a license of the same scope as set forth in subparagraph (c)(1) of this clause; provided, however, that if such data are computer software the Government shall acquire a copyright license as set forth in subparagraph (g)(3) of this clause if included in this contract or as otherwise may be provided in a collateral agreement incorporated in or made part of this contract.

(3) Removal of copyright notices. The Government agrees not to remove any copyright notices placed on data pursuant to this paragraph (c), and to include such notices on all reproductions of the data.

(d) Release, publication and use of data.

(1) The Contractor shall have the right to use, release to others, reproduce, distribute, or publish any data first produced or specifically used by the Contractor in the performance of this contract, except to the extent such data may be subject to the Federal export control or national security laws or regulations, or unless otherwise provided in this paragraph of this clause or expressly set forth in this contract.

(2) The Contractor agrees that to the extent it receives or is given access to data necessary for the performance of this contract which contain restrictive markings, the Contractor shall treat the data in accordance with such markings unless otherwise specifically authorized in writing by the Contracting Officer.

(3) The Contractor agrees not to establish claim to copyright nor to publish or release to others any computer software first produced in the performance of this contract without the prior written permission of the Contracting Officer.

(e) Unauthorized marking of data.

Notwithstanding any other provisions of this contract concerning inspection or acceptance, if any data delivered under this contract are marked with the notices specified in subparagraph (g)(2) or (g)(3) of this clause and use of such is not authorized by this clause, or if such data bears any other restrictive or limiting markings not authorized by this contract, the Contracting Officer may at any time

either return the data to the Contractor, or cancel or ignore the markings. However, the following procedures shall apply prior to canceling or ignoring the markings.

(i) The Contracting Officer shall make written inquiry to the Contractor affording the Contractor 30 days from receipt of the inquiry to provide written justification to substantiate the propriety of the markings.

(ii) If the Contractor fails to respond or fails to provide written justification to substantiate the propriety of the markings within the 30-day period (or a longer time not exceeding 90 days approved in writing by the Contracting Officer for good cause shown), the Government shall have the right to cancel or ignore the markings at any time after said period and the data will no longer be made subject to any disclosure prohibitions.

(iii) If the Contractor provides written justification to substantiate the propriety of the markings within the period set in subdivision (e)(1)(i) of this clause, the Contracting Officer shall consider such written justification and determine whether or not the markings are to be cancelled or ignored. If the Contracting Officer determines that the markings are authorized, the Contractor shall be so notified in writing. If the Contracting Officer determines, with concurrence of the head of the contracting activity, that the markings are not authorized, the Contracting Officer shall furnish the Contractor a written determination, which determination shall become the final agency decision regarding the appropriateness of the markings unless the Contractor files suit in a court of competent jurisdiction within 90 days of receipt of the Contracting Officer's decision. The Government shall continue to abide by the markings under this subdivision (e)(1)(iii) until final resolution of the matter either by the Contracting Officer's determination becoming final (in which instance the Government shall thereafter have the right to cancel or ignore the markings at any time and the data will no longer be made subject to any disclosure prohibitions), or by final disposition of the matter by court decision if suit is filed.

(2) The time limits in the procedures set forth in subparagraph (e)(1) of this clause may be modified in accordance with agency regulations implementing the Freedom of Information Act (5 U.S.C. 552) if necessary to respond to a request thereunder.

(3) This paragraph (e) does not apply if this contract is for a major system or for support of a major system by a civilian agency other than NASA and the U.S. Coast Guard agency subject to the provisions of Title III of the Federal Property and Administrative Services Act of 1949.

(4) Except to the extent the Government's action occurs as the result of final disposition of the matter by a court of competent jurisdiction, the Contractor is not precluded by this paragraph (e) from bringing a claim under the Contract Disputes Act, including pursuant to the Disputes clause of this contract, as applicable, that may arise as the result of the Government removing or ignoring authorized markings on data delivered under this contract.

(f) Omitted or incorrect markings.

(1) Data delivered to the Government without either the limited rights or restricted rights notice as authorized by paragraph (g) of this clause, or the copyright notice required by paragraph (c) of this clause, shall be deemed to have been furnished with unlimited rights, and the Government assumes no liability for the disclosure, use, or reproduction of such data. However, to the extent the data has not been disclosed without restriction outside the Government, the Contractor may request, within 6 months (or a longer time approved by the Contracting Officer for good cause shown) after delivery of such data, permission to have notices placed on qualifying data at the Contractor's expense, and the Contracting Officer may agree to do so if the Contractor -

- (i) Identifies the data to which the omitted notice is to be applied;
- (ii) Demonstrates that the omission of the notice was inadvertent;
- (iii) Establishes that the use of the proposed notice is authorized; and
- (iv) Acknowledges that the Government has no liability with respect to the

disclosure, use, or reproduction of any such data made prior to the addition of the notice or resulting from the omission of the notice.

(2) The Contracting Officer may also (i) permit correction at the Contractor's expense of incorrect notices if the Contractor identifies the data on which correction of the notice is to be made, and demonstrates that the correct notice is authorized, or (ii) correct any incorrect notices.

(g) Protection of limited rights data and restricted computer software.

(1) When data other than that listed in subdivisions (b)(1)(i), (ii), and (iii) of this clause are specified to be delivered under this contract and qualify as either limited rights data or restricted computer software, if the Contractor desires to continue protection of such data, the Contractor shall withhold such

data and not furnish them to the Government under this contract. As a condition to this withholding the Contractor shall identify the data being withheld and furnish form fit and function data in lieu thereof. Limited rights data that are formatted as a computer data base for delivery to the Government are to be treated as limited rights data and not restricted computer software.

(2) Notwithstanding subparagraph (g)(1) of this clause the contract may identify and specify the delivery of limited rights data or the Contracting Officer may require by written request the delivery of limited rights data that has been withheld or would otherwise be withholdable. If delivery of such data is so required the Contractor may affix the following "Limited Rights Notice" to the data and the Government will thereafter treat the data subject to the provisions of paragraphs (e) and (f) of this clause in accordance with such Notice:

#### LIMITED RIGHTS NOTICE (JUN 1987)

(a) These data are submitted with limited rights under Government Contract No. \_\_\_\_\_ (and subcontract \_\_\_\_\_, if appropriate). These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, if any, provided that the Government makes such disclosure subject to prohibition against further use and disclosure:

(b) This Notice shall be marked on any reproduction of these data, in whole or in part.

(End of notice)

(3) (i) Notwithstanding subparagraph (g)(1) of this clause, the contract may identify and specify the delivery of restricted computer software, or the Contracting Officer may require by written request the delivery of restricted computer software that has been withheld or would otherwise be withholdable. If delivery of such computer software is so required, the Contractor may affix the following "Restricted Rights Notice" to the computer software and the Government will thereafter treat the computer software, subject to paragraphs (e) and (f) of this clause, in accordance with the Notice:

#### RESTRICTED RIGHTS NOTICE (JUN 1987)

(a) This computer software is submitted with restricted rights under Government Contract No. \_\_\_\_\_ (and subcontract \_\_\_\_\_, if appropriate). It may not be used, reproduced, or disclosed by the Government except as provided in paragraph (b) of this Notice or as otherwise expressly stated in the contract.

(b) This computer software may be -

(1) Used or copied for use in or with the computer or computers for which it was acquired, including use at any Government installation to which such computer or computers may be transferred;

(2) Used or copied for use in a backup computer if any computer for which it was acquired is inoperative;

(3) Reproduced for safekeeping (archives) or backup purposes;

(4) Modified, adapted, or combined with other computer software, provided that the modified, combined, or adapted portions of the derivative software incorporating restricted computer software are made subject to the same restricted rights;

(5) Disclosed to and reproduced for use by support service Contractors in accordance with subparagraphs (b)(1) through (4) of this clause, provided the Government makes such disclosure or reproduction subject to these restricted rights; and

(6) Used or copied for use in or transferred to a replacement computer.

(c) Notwithstanding the foregoing if this computer software is published copyrighted computer software it is licensed to the Government without disclosure prohibitions with the minimum rights set forth in paragraph (b) of this clause

(d) Any other rights or limitations regarding the use duplication or disclosure of this computer software are to be expressly stated in or Incorporated in the contract

(e) This Notice shall be marked on any reproduction of this computer software. in whole or in part

(End of notice)

(ii) Where it is impractical to include the Restricted Rights Notice on restricted computer software, the following short-form Notice may be used in lieu thereof

#### RESTRICTED RIGHTS NOTICE SHORT FORM (JUN 1987)

Use, reproduction, or disclosure is subject to restrictions set forth in Contract No. \_\_\_\_\_ (and subcontract \_\_\_\_\_, if appropriate) with \_\_\_\_\_ (name of Contractor and subcontractor)

(End of notice)

(iii) If restricted computer software is delivered with the copyright notice of 17 U.S.C.401, it will be presumed to be published copyrighted computer software licensed to the Government without disclosure prohibitions, with the minimum rights set forth in paragraph (b) of this clause, unless the Contractor includes the following statement with such copyright notice: "Unpublished--rights reserved under the Copyright Laws of the United States."

(h) Subcontracting. The Contractor has the responsibility to obtain from its subcontractors all data and rights therein necessary to fulfill the Contractor's obligations to the Government under this contract. If a subcontractor refuses to accept terms affording the Government such rights, the Contractor shall promptly bring such refusal to the attention of the Contracting Officer and not proceed with subcontract award without further authorization.

(i) Relationship to patents. Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government.

#### 1.10 CLAUSES INCORPORATED BY REFERENCE (FAR 52.252-2) (JUN 1988)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

#### 1.11 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.

#### 1.12 SECURITY REQUIREMENTS FOR UNCLASSIFIED AUTOMATED INFORMATION RESOURCES (NASA 1852.204-76) (SEP 1993)

(a) In addition to complying with any functional and technical security requirements set forth in the schedule and the clauses of this contract, the Contractor shall initiate personnel screening checks and

obtain user responsibility agreements as required by this clause for each Contractor employee requiring unescorted or unsupervised physical access or electronic access to the following limited or controlled areas. systems, programs and data

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(1) The Contractor shall submit a personnel security questionnaire (NASA Form 531. Name Check Request, for National Agency Check (NAC) investigations and Standard Form 85P. Questionnaire for Public Trust Positions. for specified sensitive positions) and a Fingerprint Card (FD-258 with NASA overprint in Origin Block) to the installation Security Officer for each Contractor employee who requires access. The required forms may be obtained from the installation security office Employees may have finger-prints taken at the NASA Contract Badge and Pass Office, located at 1 Langley Boulevard (Building No. 1228). only between the hours of 6:30 a.m. and 4:30 p.m.. Monday through Friday. or at any police department.

(i) Several months may be required for completion of complex personnel screening investigations. Background screening may not be required for employees with recent or current Federal Government investigations.

(ii) When employee access is necessary prior to completion of personnel screening, each Contractor employee requiring access may be considered for escorted access. The installation Security Officer will establish the eligibility of proposed escorts.

(2) The Contractor shall ensure that each Contractor employee requiring access executes any user responsibility agreements required by the Government prior to access. The Contractor shall provide signed copies of the agreements to the installation Security Officer for inclusion in the employee's security file. Unauthorized access is a violation of law and punishable under the provisions of 18 U.S.C. 1029, 18 U.S.C.1030 and other applicable statutes.

(3) The Contractor shall notify the installation AIS Manager no later than the end of the day of the termination for cause of an authorized employee's access. The Contractor shall notify the COTR no later than 10 days after an authorized employee no longer requires access for any other type of termination. Verbal notifications shall be confirmed in writing within 30 days.

(b) The Contractor shall incorporate this clause in all subcontracts where the requirements identified in paragraph (a) of this clause are applicable to performance of the subcontract.

#### 1.13 OMBUDSMAN (NASA 1852.215-84) (OCT 1996)

An ombudsman has been appointed to hear and facilitate the resolution of concerns from offerors, potential offerors. and Contractors during the preaward and postaward phases of this acquisition. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the Contracting Officer, the Source Evaluation Board, or the selection official. Further, the ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the Contracting Officer for resolution. If resolution cannot be made by the Contracting Officer, interested parties may contact the installation ombudsman, Belinda Adams, direct inquiries to Sandra S. Ray at (757) 864-2428. Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the **NASA** ombudsman, the Deputy Administrator for Procurement, Thomas S. Luedtke, at 202-358-2090. Please do not contact the ombudsman to request copies of the solicitation, verify offer due date, or clarify technical requirements. Such inquiries shall be directed to the Contracting Officer or as specified elsewhere in this document.

**NOTE: The Ombudsman at the delivery order level is as stated in the G clause entitled, "Procedures for Issuing Delivery Orders."**

**NOTICE: THE FOLLOWING CLAUSES ARE APPLICABLE ONLY TO THE FIRM-FIXED PRICE ORDERS ISSUED UNDER THIS CONTRACT.**

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

I 16 LISTING OF CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following solicitation 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>
52.228-5	Insurance - Work on a Government Installation (JAN 1997)
52.229-3	Federal, State and Local Taxes (JAN 1991)
52.229-5	Taxes - Contracts Performed in U.S. Possessions or Puerto Rico (APR 1984)
52.232-1	Payments (APR 1984)
52.232-8	Discounts for Prompt Payment (MAY 1997)
52.232-11	Extras (APR 1984)
52.232-16	Progress Payments (JUL 1991)
52.232-16	Progress Payments (JUL 1991) Alternate I (AUG 1987)
52.242-15	Stop-Work Order (AUG 1989)
52.242-17	Government Delay Of Work (APR 1984)
52.243-1	Changes--Fixed-Price (AUG 1987)
52.244-1	Subcontracts (Fixed-Price Contracts) (FEB 1995) Alternate I (APR 1984)
52.245-2	Government Property (Fixed-Price Contracts) (DEC 1989)
52.246-2	Inspection of Supplies--Fixed-Price (AUG 1996)
52.246-4	Inspection of Services--Fixed-Price (AUG 1996)
52.246-16	Responsibility for Supplies (APR 1984)
52.249-1	Termination for Convenience of the Government (Fixed-Price) (Short Form) (APR 1984)
52.249-2	Termination for Convenience of the Government (Fixed-Price) (SEP 1996)
52.249-8	Default (Fixed-Price Supply and Service) (APR 1984)

NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
1852.232-82	Submission of Requests for Progress Payments (MAR 1989)

**NOTICE: THE FOLLOWING CLAUSES ARE APPLICABLE ONLY TO THE COST REIMBURSEMENT ORDERS ISSUED UNDER THIS CONTRACT.**

PART II - CONTRACT CLAUSES

SECTION I - CONTRACT CLAUSES

1.17 LISTING OF CLAUSES INCORPORATED BY REFERENCE:

NOTICE: The following solicitation 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>
52.215-30	Facilities Capital Cost of Money (SEP 1987)
52.216-7	Allowable Cost and Payment (MAR 1997)
52.216-8	Fixed Fee (MAR 1997)
52.228-7	Insurance - Liability to Third Persons (MAR 1996)
52.230-2	Cost Accounting Standards (APR 1996)
52.230-3	Disclosure and Consistency of Cost Accounting Practices (APR 1996)
52.230-6	Administration of Cost Accounting Standards (APR 1996)
52.232-22	Limitation of Funds (APR 1984)
52.242-1	Notice of Intent to Disallow Costs (APR 1984)
52.242-3	Penalties for Unallowable Costs (JAN 1997)
52.242-4	Certification of Indirect Costs (OCT 1995)
52.242-15	Stop-Work Order (AUG 1989) Alternate I (APR 1984)
52.243-2	Changes--Cost-Reimbursement (AUG 1987)
52.244-2	Subcontracts (Cost-Reimbursement and Letter Contracts) (FEB 1997) Alternate I (AUG 1996)
52.245-5	Government Property (Cost-Reimbursement, Time-and-Material or Labor-Hour Contracts) (JAN 1986) (DEVIATION) (JUL 1995)
52.246-3	Inspection of Supplies - Cost-Reimbursement (APR 1984)
52.246-5	Inspection of Services - Cost-Reimbursement (APR 1984)
52.249-6	Termination (Cost-Reimbursement) (SEP 1996)
52.249-14	Excusable Delays (APR 1984)

## NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

<u>CLAUSE NUMBER</u>	<u>TITLE AND DATE</u>
1852.216-75	Payment of Fixed Fee (DEC 1988)
1852.216-89	Assignment and Release Forms (JUL 1997)
1852.242-70	Technical Direction (SEP 1993)
1852.242-73	NASA Contractor Financial Management Reporting (JUL 1997)

## 1.18 CLAUSES IN FULL TEXT

The clauses listed below follow in full text:

- 52.222-2 Payment for Overtime Premiums (JUL 1990)  
1852.245-73 Financial Reporting of NASA Property in the Custody of Contractors (September 1996)

## 1.19 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 \$0 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

1.20 FINANCIAL REPORTING OF NASA PROPERTY IN THE CUSTODY OF CONTRACTORS  
(NASA 1852.245-73) (SEP 1996)

(a) The Contractor shall submit annually a NASA Form 1018, NASA Property in the Custody of Contractors, in accordance with 18-45 505-14, the instructions on the form, and subpart 1845-71 Subcontractor use of NF 1018 is not required by this clause; however, the Contractor shall include data on property in the possession of subcontractors in the annual NF 1018

(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, LaRC Financial Management Officer, Mail Stop 175 and three copies shall be sent concurrently through the DOD Property Administrator to the address below. If the contract is administered by NASA, the original of NF 1018 shall be submitted to the LaRC Financial Management Office and three copies shall be sent concurrently and directly to the following office:

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

(c) The annual reporting period shall be from October 1 of each year to September 30 of the following year. The report shall be submitted by October 31. The information contained in these reports is entered into the NASA accounting system to reflect current asset values for agency financial statement purposes. Therefore, it is essential that required reports be received no later than October 31. The Contracting Officer may, in the Government's interest, withhold payment until a reserve not exceeding \$25,000 or 5 percent of the amount of the contract, whichever is less, has been set-aside. If the Contractor fails to submit annual NF 1018 reports when due, such reserve shall be withheld until the Contracting Officer has determined that the required reports have been received by the Government. The withholding of any amount or the subsequent payment thereof shall not be construed as a waiver of any Government right.

(d) A final report is required within 30 days after disposition of all property subject to reporting when the contract performance period is complete.

1.15 MATERIAL INSPECTION AND RECEIVING REPORT (NASA 1852.246-72) (JUN 1995)

(a) At the time of each delivery to the Government under this contract, the Contractor shall furnish a Material Inspection and Receiving Report (DD Form 250 series) prepared in five copies, an original and four copies.

(b) The Contractor shall prepare the DD Form 250 in accordance with NASA FAR Supplement 18-46.672-1. The Contractor shall enclose the copies of the DD Form 250 in the package or seal them in a waterproof envelope which shall be securely attached to the exterior of the package in the most protected location



(c) When more than one package is involved in a shipment the Contractor shall list on the DD Form 250 as additional information the quantity of packages and the package numbers. The Contractor shall forward *the* DD Form 250 with the lowest numbered package of the shipment and print the words "CONTAINS DD FORM 250" on the package |

PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

SECTION J - LIST OF ATTACHMENTS

Exhibit A                      Contract Documentation Requirements. 5 pages

Exhibit B                      Subcontracting Plan, April 22, 1998, 13 pages

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EXHIBIT A - CONTRACT DOCUMENTATION REQUIREMENTS

I. DOCUMENTATION PREPARATION/SUBMISSION INSTRUCTIONS

A Monthly DO Status--The Contractor shall submit monthly technical letter reports for each delivery order. Delivery Orders may be summarized in one letter report unless otherwise stipulated in individual DOs. Reports shall be in narrative form, brief and informal in content. These reports shall include

1. DO Number, current modification number and date
2. DO Title
3. NASA DO Monitor
4. Contractor DO Leader
5. A narrative statement of work accomplished during the report period
6. A statement of current and potential problem areas and proposed corrective action
7. Estimated Completion Date
8. A discussion of work to be performed during the next report period

The monthly progress report shall be submitted within 10 days after the end of each calendar monthly report period.

B. Financial Management Reports--

1. The Contractor shall submit a monthly financial management report as provided by the Section I clause entitled "NASA Contractor 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 b of paragraph 2. below.)

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

- a. Each Authorized Cost Type **DO**
- b. Contract Total (Includes the sum of all authorized cost-type DO's)

3. Due not later than the 10th operating day following the close of the Contractor's accounting period being reported.

4. Each 533M shall include a narrative explanation for variances exceeding five percent between planned *hours/dollars* and actual *hours/dollars* for each reporting category (at the total contract level only).

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

Minimum Reporting Categories

a	Direct Labor Hours
b	Direct Labor Dollars
c	Premium Dollars
d	Travel
e	Consultants
f	Subcontract
g	Material
h	Overhead
i	G&A
j	Total Estimated Cost
k	Total Fee
l	Total Estimated Cost Plus Fee

NOTE: The above cost details may be revised to be consistent with the selected Offeror(s) accounting system.

C. Quarterly Financial Management Report--The Contractor shall submit a financial report at the contract level as well as broken down by DO detailed by categories specified in paragraph 3. above on NASA Form 533Q at times and in accordance with the instructions contained on the reverse side of the form. The initial report shall be due 10 operating days after the award of the contract.

D. Property in the Custody of Contractors (NASA Form 1018)--The Contractor shall submit the NASA Form 1018 no later than October 31 of each year in accordance with the Section I clause entitled "Financial Reporting of NASA Property in the Custody of Contractors."

E. Safety Plan--Within 30 calendar days after the effective date of the contract, the Contractor shall submit a detailed safety plan showing how the Contractor intends to protect the life, health, and well being of NASA and Contractor employees as well as property and equipment. This plan, as approved by the Contracting Officer, should contain, as a minimum the following:

1. Points of Contact and Responsibility--Organizational flow chart and description of responsibilities of each employee in your organization for safety.
2. Employee Safety Training, Certification and Programs--Detailed information on type of training required, parties responsible for certification, and outline of applicable regulations. Detail company programs which emphasize personal safety and motivate employees to be safety conscious.
3. LaRC Safety Policies/Procedures--Recognition of applicable LaRC safety policies and procedures such as Langley Handbook 1710.10, LaRC Red Tag System.
4. Accident Investigation and Reporting--Procedures for investigating and reporting accidents/incidents including immediate notification to the NASA LaRC Safety Manager of all injuries and damage to equipment or facilities.
5. Hazardous Operations--
  - (a) Description of hazardous operations involved in contract performance.
  - (b) Plans for apprising employees of all hazards to which they may be exposed
  - (c) Proper conditions and precautions for safe use and exposure to hazardous operations. Include recognition of LHB 1710.12, Potentially Hazardous Materials.

6 People with Disabilities--In accordance with the Americans with Disabilities Act the plans should specify that prior to assigning a person with disabilities to this contract the Contractor shall contact the Disability Program Manager at (757) 864-7718

7 Other Safety Considerations--Any other safety considerations unique to your operation

F 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 form

In addition to the instructions on the reverse of the SF 295. the Contractor is required to comply with Clause 1852 219-75, Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Reporting

Pursuant to the contract clause entitled "Small, 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 **10A, 10B, 10C, 11, and 12** of the Standard Form 294. 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.

G. Monthly Progress Report for Socioeconomic Goals - - The Contractor shall submit a monthly report which provides the following information:

- 1. Small Business Concerns: \$ \_\_\_\_\_  
(include disadvantaged)
- 2. Large Business Concerns: \$ \_\_\_\_\_
- 3. Total (sum of Sm & Lg Bus): \$ \_\_\_\_\_
- 4. Small Disadv. Bus. Concerns: \$ \_\_\_\_\_
- 5. Woman-Owned Small Business : \_\_\_\_\_  
(include as part of 3 & 4 above)
- 6. Historical Black Colleges/Univ and/or: \$ \_\_\_\_\_  
Minority Institutions (include as part of 3 & 4 above)

H. 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.

I. Evidence of Insurance--The Contractor shall submit evidence of the insurance coverage, required by the **NASA** Clause 1852.228-75 in Section I entitled "Minimum Insurance Coverage" (i.e., a Certificate of Insurance or other confirmation), to the Contracting Officer prior to performing under this contract.

J. Quality Plan--Within 30 calendar days after the effective date of the contract, the Contractor shall submit a quality plan which addresses how contract quality requirements will be met. The plan and subsequent revisions will be reviewed and approved by the Contracting Officer or the designated representative.

## 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-  
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--Safety Officer, Mail Stop 429

G--Property Administrator

H--According to Instructions on Form

I--Small Business Specialist, Mail Stop 144

J--Security Officer, Mail Stop 411

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 DO Status	A-1, B-2
Financial Management Report	A-1, B-2, E-2
New Technology or Patent Rights Reports	A-1, B-2, C-1, D-1
Report of Government-Owned/Contractor-Held Property (NASA Form 1018)	G-4
Safety Plan	B-2, F-1
Subcontracting Report for Individual Contracts (Standard Form 294)	A-1, I-1
Summary Subcontractor Report (Standard Form 295)	H-1

Monthly Progress Report for Socioeconomic Goals	A-1, I-1
Federal Contractor Veterans Employment Report (VETS-100)	H-1
Evidence of Insurance	A-1, B-1
Quality Plan	A-1, B-1
NASA Form 531 and Standard Form 85P (Ref. Clause 1852.204-76)	A-1, J-1

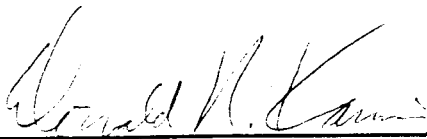
D When the Contract Administrator (**A**) is not designated above to receive a copy of a report or document, the Contractor shall furnish a copy of the report/document transmittal letter to the Contract Administrator. The Contractor shall also furnish a copy of the transmittal letter and a copy of each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

EXHIBIT B - SUBCONTRACTING PLAN

SUBCONTRACTING PLAN FOR  
SMALL BUSINESS  
AND  
SMALL DISADVANTAGED BUSINESS  
(INCLUDING WOMEN OWNED SMALL BUSINESS)  
CONCERNS

INDIVIDUAL PLAN FOR  
**SYSTEMS ENGINEERING FOR RESEARCH FACILITY  
INTEGRATED SYSTEMS (SERFIS)**  
SOLICITATION 1-64-GGH. 1684  
PRIORITY DO-C2

AERO SYSTEMS ENGINEERING, INC.  
358 EAST FILLMORE AVENUE  
ST. PAUL, MINNESOTA 55107



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GARY SOMMERLAND  
DIRECTOR OF MANUFACTURING OPERATIONS

APRIL 22, 1998



This is a Subcontracting Plan for small business concern and business concerns owned and controlled by socially and economically disadvantaged individuals. submitted by Aero Systems Engineering, Inc. (ASE). 358 East Fillmore Avenue. St. Paul. Minnesota. (612) 227-7515. In accordance with Public Law 95-507. FAR 52.219-8 and other applicable solicitation requirements.

I. Information contained herein is privileged or confidential information of ASE within the meaning of 5 USC 553 and as such is exempt from the public disclosure provisions thereof.

II. SOLICITATION/CONTRACT NUMBER: 1-64-GGH.1684

III. INDIVIDUAL COMPLETING THIS PLAN: Gary Sommerland  
Telephone: (612) 227-7515

IV. TOTAL ESTIMATED VALUE OF CONTRACT: \$ 27,759,281

V. ESTIMATED SUBCONTRACTOR VALUE \$ 15,794,315

Small Business 60% \$ 9,476,589

Large Business 40% \$ 6,317,726

The planned SB amounts for each contract period is shown in the table below.

	YR 1	YR 2	YR 3	YR 4	YR 5	TOTAL
SB TOTAL	\$ 1,831,963	\$ 1,863,107	\$ 1,894,779	\$ 1,926,991	\$ 1,959,749	\$ 9,476,589

VI. SMALL DISADVANTAGED BUSINESS PERCENTAGE AND STATEMENT TOTAL DOLLAR GOALS

8.0% \$ 2,220,742

The planned SDB/WOSB amounts for each contract period is shown in the table below. Aero Systems Engineering will keep appropriate records and file SF 294, SF 295 and letter progress reports by the 10<sup>th</sup> calendar day of the month following the close of the reporting period.

	TOTAL CONTRACT					
	YR 1	YR 2	YR 3	YR 4	YR 5	TOTAL
TOTAL	\$ 5,366,275	\$ 5,457,501	\$ 5,550,279	\$ 5,644,634	\$ 5,740,592	\$ 27,759,281
SDBNVO SB GOAL						
TOTSDB PARTICIPATION	\$ 250,426	\$ 254,683	\$ 259,013	\$ 263,416	\$ 267,894	\$ 1,295,433
TOT WOSB PARTICIPATION	\$ 178,876	\$ 181,917	\$ 185,009	\$ 188,154	\$ 191,353	\$ 925,309
TOT SDBNVO SB	\$ 429,302	\$ 436,600	\$ 444,022	\$ 451,571	\$ 459,247	\$ 2,220,742

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**The dollar value of the goals will be maintained in proportion to the actual value of work awarded. In the event that the value of the work actually awarded under this contract exceeds or falls short of the offered price, the dollar amounts of our Small Business Subcontracting Plan will be increased or decreased accordingly.**

VII. DESCRIPTION OF THE PRINCIPAL TYPE OF SUPPLIES AND SERVICES TO SUBCONTRACT

- A. Mechanical, Fluid, and Automation Systems Components
- B. Design Services
- C. Fabrication Services
- D. Installation Services

All services are subject to small business and small disadvantaged business consideration. ASE will use the Government-provided PASS facility as well as other commonly used databases and vendor source lists as stated in, but not limited to, the Federal Acquisition Regulation (FAR) 52.2 19-9(d)(5), to comply with the small and/or small disadvantaged business objectives outlined herein.

VIII. Comments on goals, subcontracting possibilities and past performance of the concerns, subcontracting with small business and small disadvantaged business as they pertain to this procurement:

Above goals predicated on known percentages as experienced on previous contracts requiring similar types of procurement. ASE's past performance in utilizing small and small disadvantaged business concerns is shown in Attachment 1.

Attachment "2" provides a list of the SB/SDB/WOSB suppliers that ASE is planning to utilize for the SERFIS contract.

Attachment "3" provides a list of additional SB/SDB/WOSB suppliers currently being used by ASE and may be used for the SERFIS contract.

IX. The method(s) used to identify potential sources for solicitation purposes are 1) existing company source lists, 2) Department of Commerce, 3) Small Business Development Center(s), 4) small or small disadvantaged business concerns trade associations, 5) PASS, and 6) American Indian Procurement Project.

X. The designated individual.. within the employ of ASE who will administer the subcontracting plan of this program is:

NAME: Gary Sommerland  
TITLE: Director of Manufacturing Operations  
TELEPHONE: (757) 865-6371 ext 201

His duties are as follows:

- 
- A. Oversees compliance with the content of the plan.
  - B. Designs a program to locate capable small business and small disadvantaged business concern sources for current and future acquisitions including the establishment of source lists of small business and small disadvantaged business concerns.
  - C. Reviews contracts for possible breakout items suitable for the small business and small disadvantaged business concerns to participate in the program.
  - D. Participates in procurement planning and selection of potential small business and small disadvantaged business concerns to assure they are offered every opportunity to participate in the program.
  - E. Performs periodic audits of subcontractors to measure progress against the plan and assures that participation of small business concerns is accurately reported.
  - F. Coordinates and participates with SBA and DCMAO small business utilization specialist to locate capable firm and make available to SBA copies of solicitations when so requested.
  - G. Assists small business and small disadvantaged business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation of such concerns.
  - H. Submits SF 295 and SF 294 as required by FAR 52.2 19-9 and monthly to NASA.
  - I. Provides records and reports and fully cooperates in all studies and surveys as may be required by the customer, DCMAO or the Small Business Administration.
- XI. Records on each subcontract solicitation resulting in an award of more than \$100,000.00, indicating (A) whether small business concerns were solicited and if not, why not, and (C) if applicable, the reason award was not made to small business concern.
- XII. Description of efforts that will be taken by ASE to assure small business and small disadvantaged business concerns will have an equitable opportunity to compete for subcontracts are as follows:
- A. Procurement goals are established and progress of the buyers in attaining the goals are reported and reviewed monthly.
  - B. ASE Purchasing personnel will actively seek new small business concerns owned and controlled by socially and economically disadvantaged individuals for development into qualified suppliers.
  - C. ASE will provide specifications, drawings and other pertinent data to qualified small business and small disadvantaged firms to aid them in preparing their bids
  - D. ASE will make allowances consistent with contract requirements and good purchasing practices to permit delivery of economical quantities within reasonable delivery schedules.
-

- E. When mutually beneficial. ASE will provide management and technical assistance to small business concerns and small business concerns owned and controlled by socially and economically disadvantaged persons. The type of assistance offered may include, but not be limited to, quality control guidance, technical, manufacturing and financial consultation and assistance.
- F. Directories listing small business concerns and small business concerns owned and controlled by socially and economically disadvantaged persons that have capabilities identifiable to requirements are available to the buyers and are utilized, as required, in establishing potential bidders lists. Potential source listings available from the cognizant government agency of the Small Business Administration are utilized to the extent necessary to ensure that small business concerns and small business concerns owned and controlled by socially and economically disadvantaged persons are considered in developing bid lists. ASE representatives will attend procurement conference seminars, trade fairs and other such functions where participation is expected to expose new or additional qualified small business concerns or small business concerns owned and controlled by socially and economically disadvantaged persons.

### XIII. CLAUSE FLOW DOWN

ASE will include the clause entitled "Utilization of Small Business Concerns and Small Disadvantaged Business Concerns." FAR 52.219-9, in all subcontracts over \$10,000 which offers further subcontracting opportunities and will require all sub-contractors (except small business concerns) who receive subcontracts in excess of \$500,000 (\$1,000,000 in the case of construction) to adopt a plan in consonance with FAR 52.219-9, "Small Business and Small Disadvantaged Business Subcontracting Plan".

### XIV. REPORTS

ASE will (i) cooperate in any studies or surveys as may be required, (ii) submit periodic reports in order to allow the Government to determine the extent of compliance by the offeror with the subcontracting plan, (iii) submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with the instructions on the forms and (iv) ensure that its subcontractors agree to submit SF 294 and 295.

### XV. RECORDS

The ASE maintains, among others, the following records:

- A. Source lists, guides, and other data that identify small and small disadvantaged business concerns;
- B. Organizations contacted in an attempt to locate sources that are small or small disadvantaged business concerns.
- C. Records on each subcontract: solicitation resulting in an award of more than \$100,000, indicating (A) whether small business concerns were solicited and if not, why not, (B) whether small disadvantaged business concerns were solicited

and if not, why not. (C) if applicable, the reason award was not made to a small business concern:

- D. Records of any outreach efforts to contact (A) trade associations, (B) business development organizations, and (C) conferences and fairs to locate small and small disadvantaged business sources:
- E. Records of internal guidance and encouragement provided to buyers through (A) workshops, seminars, training, etc., and (B) monitoring performance to evaluate compliance with the programs' requirements:

#### XVI. SUBCONTRACTOR REPRESENTATIONS

- A. Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as either a small business concern or a small business concern owned and controlled by socially and economically disadvantaged individuals.
- B. Contractor will provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small business or small disadvantaged business 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.

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**ATTACHMENT 1  
SUPPORTING COMMENTS  
ASE SMALL BUSINESS PLAN**

The following table summarizes ASE's percentage of materials subcontracted to small and small disadvantaged businesses. These are the official numbers as reported on the SF295 Summary Contract Reports.

ASE Fiscal Year	Large Business	Small Business	Small Disadvantaged
1993	15%	58%	27%
1994	11%	79%	10%
1995	26%	69%	5%
1996	30%	60%	10%
1997	Available April 30, 1998		

**ATTACHMENT 2****PLANNED SB/SDB/WOSB SUPPLIERS FOR THE SERFIS CONTRACT****Sierra Lobo, Inc., Strongsville, OH (SDB)**

## Operations Engineering

- Wind Tunnel Facility Operations
- Other Test Facility Operations

## Mechanical Design

- Pneumatic and Hydraulic Actuators
- Pressure and Vacuum Vessels
- Heat Exchangers
- Cryogenic Systems

## Control Systems Design

- Process Control Hardware and Instrumentation
- Model Positioning Systems

**Lord and Company, Hampton, VA (SDB)**

## Control System Design

- Process Control Hardware and Instrumentation

## Control System Instrumentation

**NRE, Inc., Knoxville, TN (SDB)**

## Mechanical Analysis

- Thermal Modeling and Simulation

## Control System Design

- Process Control Hardware and Instrumentation
- Control Algorithms – artificial intelligence, fuzzy logic

**Vigyan, Inc., Hampton, VA (SDB)**

## Control System Design

- Process Characterization and Modeling – wind tunnels
- Control Algorithms – wind tunnels, model positioning

## Computer Maintenance

- Computer Repair
- System Administration

**Metrotec Associates, Inc., Virginia Beach, VA (SDB)**

## Commercial Building Construction

- Concrete
- Masonry
- Steel

**Mainthia Technologies, Inc., Cleveland, OH (SDB)**

## Mechanical Analysis

- Pressure Vessel Certification

## Control System Design

- Process Control Hardware and Instrumentation

- Control Algorithms

**Fee's Electrical Service, Inc.. Portsmouth, VA (WOSB)**

## Electrical Fabrication

- Panel Buildup
- Control Console Buildup

## Electrical Installation

- Power and Instrument Field Wiring
- Conduit Installation
- Panel Installation

**Calvin Hudgins Welding, Inc.. Seaford, VA (WOSB)**

## Mechanical Fabrication

- Machining
- Welding
- Sheet Metal

**Audio Visual Solutions, Inc., Newport News, VA (SB)**

## Audio Visual Equipment and Installation

- Projection Systems
- Closed Circuit TV
- Video Switches and Amplifiers

**Checker Machine Incorporated, New Hope, MN (WOSB)**

## Mechanical Fabrication

- Heavy Machining
- Welding
- Sheet Metal
- Precision Grinding and Machining

**Diversified Electronics, Spring Lake Park, MN (WOSB)**

## Electronic Assembly

- Electronic Component Assembly
- Cable Assemblies



<i>VENDOR#</i>	<i>VENDOR NAME</i>	<i>WOSB</i>	<i>SDB</i>
A00006	Globe Machinery	Y	
A00068	A-1 Certified Welding	Y	
A00075	Advanced Industrial Service	Y	
A00088	Allied Instr & Tool Co	Y	
A00122	Aeroproducts Inc	Y	
A00161	Action Instruments		Y
A00228	Acme Industries Inc	Y	
A00247	Audio Electronics, Inc	Y	
A00379	Advanced Technology Inc	Y	Y
A00415	Advanced Industrial Prod	Y	
A00436	Alrod International	Y	
A00458	Anderson Air Cargo Inc	Y	
A00491	Atlantic Fabricators	Y	
A00495	AAA Rentals Inc	Y	
A00516	Avanti Electronics Inc	Y	
A00571	The Aeroacoustic Corp	Y	
B00061	Born Manufacturing	Y	
B00094	Border Transportation	Y	Y
B00128	Brunsvold & Associates		Y
B00136	Browning Construction Co	Y	
B00152	Boffin Limited	Y	
B00185	Bit 3 Computer Corp		Y
B00233	B & W Mechanical Inc	Y	
C00002	Checker Machine Inc.	Y	
C00014	Consolidated Resistance	Y	
C00046	Candlelite Studio	Y	
C00110	Cal-Switch		Y
C00172	Chassis Trak Division	Y	
C00231	CDI Sales & Applications	Y	
C00297	Command Arts	Y	
C00383	Carlson Equipment Co	Y	Y
C00418	Columbia Precision		Y
D00036	Dee Electronics		Y
D00226	Dalco Enterprises Inc	Y	
D00241	Del Aerospace Inc	Y	Y
E00039	Electro National Corp		Y
E00100	Electro Wire Inc		Y
E00111	E2 Inc		Y

<i>VENDOR#</i>	<i>VENDOR NAME</i>	<i>WOSB</i>	<i>SDB</i>
E00209	Electro Enterprises	Y	
E00316	Electronic City	Y	
E00317	Electrodes Inc	Y	
G'00020	Global Training Center	Y	
G00024	Galaxy Computer Services		Y
G00029	Gemini elect. Comp. Corp		Y
G00043	Goulds Pumps Inc	Y	
G00072	C. E. Gobeil Co		Y
G00122	Gerard Construction Ser		Y
G00144	Globe Electronic Hardwre	Y	
G00149	Glenwood Inglewood CO	Y	
G00159	Great River Systems Inc	Y	
G00171	Gertrud Ostrem & Assoc	Y	
G00179	Gear Tools	Y	
H00009	Harjo Co	Y	
H00042	Hiawatha Panel	Y	
H00108	Hapeco Inc	Y	
H00143	H. L. Yoh Company		Y
H00159	Heigl Adhesive Sales Inc	Y	
H00166	Jane M Holmstrom	Y	
H00189	Hardware Specialty Co		Y
I00035	Imperial Fabrication Co	Y	
I00004	International Power		Y
I00133	Ikaros Aviation Inc	Y	
I00254	Int'l Helicopter Parts	Y	Y
J00001	John A Striednig Company	Y	
J00003	Jackson Fuehrer & Assoc	Y	
J00047	JTL Electronics		Y
J00084	Jodee Kulp Graphic Arts	Y	
J00098	Jet Aviation Trading Inc		Y
K00038	Kell-Strom Tool Co Inc	Y	
K00069	Kaye & Macdonald	Y	
K00081	Kirby A Kennedy & Assoc	Y	
K00086	Kanjipro Inc		Y
L00042	L-H Researh, Inc		Y
L00062	Lone Star Screw Co.	Y	
L00096	Ludeca Inc	Y	
L00106	Melissa Litzer, Csc	Y	
L00114	Lilly Engineering Co	Y	
M00086	Markham Computer Corp	Y	
M00053	Marway Products Inc		Y
M00298	McDonouch Truck Line Inc	Y	
M00320	Mid-state aerospace inc.	Y	

<i><b>VENDOR#</b></i>	<i><b>VENDOR NAME</b></i>	<i><b>WOSB</b></i>	<i><b>SDB</b></i>
M00344	Masline Electronics. Inc.	Y	
M00371	Matrix Abrasives	Y	
M00387	Minvalco Inc	Y	
M00416	Micro-weld inc.	Y	
N00025	Northstar Repro Products	Y	
N00035	Natel Engineering Co Inc		Y
N00061	N W Photography	Y	
O00002	Olsen Chain And Cable	Y	
O00004	Omega Engineering. Inc	Y	Y
O00010	Overseas Aviation		Y
O00019	Ontrack Data Recovery	Y	
O00067	Olympic Aviation	Y	
P00037	Professional Research	Y	
P00041	Pioneer Plastic Inc		Y
P00043	Packnet Limited	Y	
P00072	Projects Inc	Y	
P00082	Pat Ricci Enterprises	Y	
P00035	Parts 1	Y	
P00041	Prototype Development		Y
P00164	Process Control	Y	
P000167	H R Peterson Coy		
P00171	Pan Pacific Electronics		Y
P00229	Pressure Systems Inc		Y
P0065	Photography Display	Y	
P00283	Precision Components	Y	
Q00011	Quantum dynamics. inc.	Y	Y
R00002	Relcom Ind Inc	Y	
R00101	Richco Plastic Co		Y
R00106	Ramex inc.		Y
R00115	recortec inc.		Y
R00137	RJO Entepprises-Acctsrec		Y
R00148	R C M Data	Y	
R00191	Richardo Test Automation		Y
S00129	Dasco Systems Inc	Y	
S00204	R. Stokes & Associates		Y
S00300	Servometer Corp	Y	
S00322	Sabra Systems Inc	Y	
S00372	Spectrum Indust Ies	Y	
T00020	Texas Arris Corporation	Y	
T00044	Town & Country Transfer	Y	
T00087	Torwico Electronics Inc		Y
T00149	Transpec Fasteners		Y
T00198	Twin City Plating Co	Y	

<b>VENDOR#</b>	<b>VENDORNAME</b>	<b>WOSB</b>	<b>SDB</b>
T00226	Teknit		Y
T00230	Titan Fabrication Inc		Y
T00232	Teled Inc	Y	
T00285	Tran Wave Soldering		Y
U00006	Unistrut Northern		Y
U00022	Universal Electronic Spl	Y	
U00039	Unicorn Enterprise Inc	Y	
V00009	Vickery-Simms	Y	
V00013	Virginia Panel Corp	Y	
V00023	VKR Services Inc	Y	
V00087	Villa Eletric Inc		Y
W00129	Western Metal Works Inc		Y
X00007	Xin Min Liu		Y
Y00008	Yankee Electronics		Y