NAS1-00135

NASA

National Aeronautics and
Space Administration
Langley Research Center
Hampton, VA 23681-2199

SOLICITATION

1-132-RB.1002

REQUIREMENT: SYSTEMS ANALYSIS AND MISSION SUPPORT (SAMS)

1. Section L, **Provision** L.13, contains important information on proposal preparation. Section M sets forth the evaluation methods for award.
2. The Government intends to award the contract resulting from the final solicitation for this requirement without discussions. See Section L, **Provision** L.3, entitled INSTRUCTIONS TO OFFERORS—COMPETITIVE ACQUISITION (FAR 52.215-1) (FEB 2000). To facilitate this process, we would like to avoid situations where proposals include substantive exceptions to the proposed contract terms and conditions which might be unacceptable to the Government and, therefore, preclude award. Therefore, it is requested and strongly recommended that you bring to the Government's attention prior to receiving proposals any exceptions, questions, or additions you have to the proposed contract terms and conditions. The resolution of any exceptions to terms and conditions prior to receipt of proposals will aid the Government in its intention to award without discussions and thus streamline the procurement process.
3. "Bidders' Library" information is included in L.12. The Bidder's Library now includes information from the SAMS Preproposal Conference that was held on April 25, 2000 at the NASA LaRC Pearl Young Theater. This information is included under NASA Contract NAS1-96013, Miscellaneous.
4. Attachment 5 has been revised by deleting the "Preproposal Conference Form" and replacing it with "Draft RFP Questions and Answers." Offerors are encouraged to review all the questions and answers, as some of the answers have changed since the Preproposal Conference.
5. The resultant contract will be a Small Business Set-Aside under SIC Code: 8731, **1,500 employees.**
6. This follow-on procurement will consolidate two LaRC contracts into a single, integrated work activity that will provide for greater overall work efficiencies. The current efforts being consolidated are: **NAS1-96013, Systems Analysis and Engineering Research (SAERS) and NAS1-96014, Aerospace Research and Technology Services (ARTS).**
7. It is anticipated that up to 10 employees will need a SECRET Security Clearance and up to 3 employees will need a TOP SECRET Security Clearance at contract start - January 1, 2001.
8. Your attention is directed to Section L, L.13.F.1.e, which contains information on Government provided facilities. This represents a significant change from the predecessor contracts (NAS1-96013 and NAS1-96014) on providing ADP equipment to the Contractors. ADDITIONAL INFORMATION ON ADP EQUIPMENT HAS BEEN INCLUDED IN THIS SECTION.

NOTICE: FOR BID RESULTS, ADDITIONAL PROCUREMENT OPPORTUNITIES AND OTHER NOTICES, CALL **1-800-PUR-NASA.**

SOLICITATION, OFFER AND AWARD

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) ▶	RATING	PAGE	OF	PAGE(S)
	DO - C9	1		144

2. CONTRACT NO.	3. SOLICITATION NO.	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NO.
	1-132-RB.1002	☐ SEALED BID (IFB) ☐ NEGOTIATED (RFP)		

7. ISSUED BY	CODE	8. ADDRESS OFFER TO *(IF OTHER THAN ITEM 7)*
National Aeronautics and Space Administration Langley Research Center Hampton, VA 23681-2199		9A Langley Boulevard, Building 1195B, Room 125 NASA, Langley Research Center Hampton, VA 23681-2199

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder"

SOLICITATION

9. Sealed offers in original and 9 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in 9A Langley Boulevard, Building 1195B, Room 125 until 4:00 PM local time June 26, 2000.

CAUTION LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(NO COLLECT CALLS)* AREA CODE	NUMBER	EXT.	C. E-MAIL ADDRESS
	C. Tom Weih	757	864 -	3878	c.t.weih@larc.nasa.gov

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OFFER *(Must be fully completed by offeror)*

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days *(60 calendar days unless a different period is inserted by the offeror)* from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

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

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*

15B. TELEPHONE NUMBER AREA CODE	NUMBER	EXT.	☐ 15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	17. SIGNATURE	18. OFFER DATE

AWARD *(To be completed by Government)*

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: ☐ 10 U.S.C. 2304(c) ( ) ☐ 41 U.S.C. 253(c) ( )	23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified) ▶	ITEM

24. ADMINISTERED BY (IF OTHER THAN ITEM 7) CODE	25. PAYMENT WILL BE MADE BY CODE
	Financial Management Office, MS 175 Langley Research Center Hampton, VA 23681-2199

26. NAME OF CONTRACTING OFFICER (TYPE OR PRINT)	27. UNITED STATES OF AMERICA	28. AWARD DATE
PANICE H. CLARK Panice H. Clark	*(Signature of Contracting Officer)*	

IMPORTANT: Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

AUTHORIZED FOR LOCAL REPRODUCTION
Previous edition not usable.

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Pursuant to the Provisions of NASA FAR Supplement 18-4.7301(b)(3), I hereby authorize this issuance as Procurement Officer of LaRC.

Kimberly D Stone

STANDARD FORM 33 (Rev. 9-97)
Prescribed by GSA FAR (48 CFR) 53.214(c)

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

B.1 SUPPLIES AND/OR SERVICES TO BE FURNISHED (LaRC 52.211-90) (MAY 1999)

The Contractor shall provide all resources (except as may be expressly stated in this contract as furnished by the Government) necessary to perform the requirements delineated in the Description/Specifications/Work Statement in Section C.

Item No.	Description	Quantity	Unit
1	Langley Research Center - System Analysis and Mission Support (SAMS)	1	Lot
2	Other NASA Centers - SAMS	1	Lot

B.2 MINIMUM AND MAXIMUM INDEFINITE DELIVERY, INDEFINITE QUANTITY (IDIQ) CONTRACT VALUE

The guaranteed minimum quantity of work which will be required under this contract, and which will be initiated through the issuance of task orders, shall be $1 million. There will be no further obligation on the part of the Government to issue additional task orders thereafter. The total maximum value is $240 million for the 5 year potential period of performance.

B.3 AWARD FEE

The Award Fee Evaluation Plan is contained as Exhibit E to this contract. The maximum award fee available to the Contractor on each task order will be established by applying a fixed rate of ____% to the total estimated (not actual) cost of each task order agreed upon by both parties at the time of issuance.

The award fee available for each evaluation period will be determined based on the task orders projected to be performed during that period. If a task order is projected to be started and completed during a particular evaluation period, then the award fee for that particular task order will be included in the award fee available for that period only. If a task order is started in a particular evaluation period and projected to extend beyond that period, then the award fee for that particular task will be distributed across the appropriate evaluation periods consistent with projected completion milestones (see G.12(C)(2)(i)). At the end of each evaluation period, the actual earned award fee will be added to the contract by modification.

B.4 CONTRACT FUNDING (NASA 1852.232-81) (JUN 1990)

(a) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this contract is $___. This allotment is for the performance of work in accordance with the limitations and completion dates as set forth in task orders authorized by the Contracting Officer.

(b) An additional amount of $____ is obligated under this contract for payment of fee.

B.5 ESTIMATED COST

The estimated cost of the contract is the sum of the estimated costs set forth for individual Task Orders issued by the Government pursuant to G.12, Task Orders.

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C.1 STATEMENT OF WORK -- SYSTEMS ANALYSIS AND MISSION SUPPORT CONTRACT (SAMS)

1.0 Purpose

This statement of work defines the requirement for research, engineering and technical support necessary to assist the NASA Langley Research Center and other NASA Centers in fulfilling its mission. These requirements include, but are not limited to, technical support in the functional areas of Aerodynamics, Aerothermodynamics, and Acoustics; Structures and Materials; Aerospace Systems and Concepts; Airborne Systems; and Systems Engineering.

2.0 Scope

The Contractor shall provide support to the Langley Research Center aeronautic and aerospace research programs, earth and space science programs, and engineering activities. The work to be performed will be defined in performance based Task Orders issued by the Contracting Officer. Some of these tasks will be classified (up to and including Top Secret). The scope and diversity of these Task Orders will encompass the broad scope of the mission and responsibilities of the Langley Research Center's research and technology programs. The general categories of work to be performed under the task orders are outlined below.

3.0 Systems Analysis and Technology Integration Studies

3.1 Aeronautics Systems Analysis - The Contractor shall conduct systems analysis and technology integration and conceptual design studies for advanced civil and advanced military aircraft. Both advanced conventional aircraft configurations and unconventional aircraft concepts will be studied. The Contractor shall conduct conceptual design studies to identify potential benefits of advanced aircraft technologies, components and subsystems, and the Contractor shall evaluate the impact and interaction of key technologies on the survivability of advanced military aircraft. The Contractor shall also conduct system studies to evaluate the potential impact of technology on the safety and capacity of the national air transportation system. The output of these various studies will help NASA evaluate the technical content of current and proposed research programs towards meeting agency and national goals.

3.1.1 Subsonic and Supersonic Civil Aircraft - The Contractor shall conduct systems analysis and technology integration and conceptual design studies pertaining to large subsonic and supersonic passenger and cargo transports and for general aviation and personal aircraft concepts. Both conventional aircraft configurations and advanced aircraft concepts will be evaluated. The Contractor shall conduct aircraft mission and economic analyses using state-of-the-art aircraft sizing codes and economic analysis tools. Supersonic transport studies, including supersonic business jets, will also involve the conceptual design and analysis of configurations with a low sonic-boom level. The Contractor shall also employ current state-of-the-art analysis codes to evaluate the potential impact of advanced technologies on the safety and capacity of the national airspace system. Of particular interest are the technologies being developed in both the NASA Safety and Capacity programs. The Contractor shall identify the high-payoff and critical technologies that will need to be developed for the various aircraft and transportation system concepts. The Contractor shall also maintain, upgrade and provide user support for the Flight Optimization System which is a state-of-the-art aircraft sizing, analysis and optimization code that is applicable to a wide range of aircraft.

3.1.2 Subsonic and Supersonic Military Aircraft - The Contractor shall conduct systems analyses and technology integration and conceptual design studies for advanced military aircraft. The aircraft types include subsonic airlift transports, fighter/attack aircraft, supersonic air-superiority fighters and long-range bombers and hypersonic vehicles. The contractor shall conduct multi-disciplinary

system studies that develop conceptual designs for advanced military aircraft, evaluate the application of advanced technologies to military aircraft and develop and modify the analysis and design codes that are required to conduct the studies. The Contractor shall be responsible for generating or analyzing the configuration layout, aerodynamics, weights, propulsion, performance, and survivability characteristics of the advanced military aircraft concepts.

3.2 Advanced Space Transportation and Planetary Exploration Systems Analysis – The Contractor shall conduct systems analysis, technology assessments, and conceptual design studies for space transportation and planetary exploration vehicle systems. The Contractor shall conduct conceptual design studies to identify lower cost, safer and more reliable systems that fulfill Agency mission goals. The Contractor shall also evaluate the impact of varying technologies on such systems and provide information that can help define and prioritize Agency technology programs. This shall include system trade studies for representative vehicle systems in space transportation, hypersonic, and planetary exploration mission areas. The output of these analyses will help NASA define, evaluate and select the technical content of current and proposed technology and vehicle programs that meet Agency and National goals.

3.2.1 Advanced Space Transportation Systems – The Contractor shall conduct systems analysis, technology assessments, and conceptual design studies related to rocket and airbreathing crew and cargo space launch systems; on-orbit crew and cargo transfer systems; and airbreathing hypersonic cruise vehicle systems. The Contractor shall provide and employ state-of-the-art analysis codes to perform performance studies including: six-degree-of -freedom trajectory analysis; aerodynamic and aerothermal (including Computational Fluid Dynamics (CFD)) analysis of vehicles under launch, cruise, orbit, entry, variable weight and geometry conditions; and structural and subsystem analysis and design of such vehicles with advanced propulsion systems. The Contractor shall also employ state-of-the-art analysis codes to evaluate the design sensitivities, cost, reliability and safety of such vehicle systems. Of particular interest is the identification of technologies by the Contractor relative to such systems that have significant payoffs in vehicle concept performance, associated cost, safety and reliability. The Contractor shall also maintain, upgrade and provide user support for state-of-the-art design tools that support such studies.

3.2.2 Planetary Exploration Systems – The Contractor shall conduct systems analysis, technology assessments, and conceptual design studies related to planetary exploration systems including: planetary entry systems, systems that utilize planetary aero-assist, and humans-to-Mars vehicle systems. The Contractor shall provide and employ state-of-the-art analysis codes to perform six-degree-of-freedom performance studies including: Monte Carlo trajectory analysis; aerodynamic and aerothermal (including CFD) analysis of vehicles during planetary entry as well as associated weights and geometry; structural and subsystem analysis and design of such vehicles. The Contractor shall also employ state-of-the-art analysis codes to evaluate the detailed performance, design sensitivities, cost, reliability and safety of such vehicle systems. Of particular interest is the identification by the Contractor of technologies and techniques relative to such systems that have significant payoffs in vehicle concept performance, associated cost, safety and reliability. The Contractor shall also maintain, upgrade and provide user-support for state-of-the-art design tools that support such studies.

3.3 Spacecraft Mission and System Performance Analysis - The Contractor shall develop, maintain and apply state-of-the-art space mission analysis techniques and tools to be used for both mathematically and visually simulating Earth-orbiting and exploration spacecraft. These techniques and tools should be compatible with NASA collaborative engineering environments and be able to facilitate the optimization of a full mission lifecycle design. In addition to the design, modeling and simulation of a space system's physical and functional characteristics, the techniques and tools employed shall also factor in cost, risk, architecture and programmatic variables in the analysis process. The tools and techniques shall be flexible enough to perform full mission simulations across a broad spectrum of NASA missions including Earth remote sensing, planetary exploration and Human exploration and development of space.

The Contractor shall apply state-of-the-art analysis tools and techniques towards the simulation and visualization of six-degree-of freedom dynamics and controls analysis, proximity operations and automated spacecraft servicing for the International Space Station, future spacecraft, and in-space experiments in order to derive and/or verify mission operations requirements and procedures. The Contractor shall assess the impacts of incorporating advanced guidance, navigation, and control technologies and/or operations on spacecraft mission requirements and performance and overall spacecraft systems design.

3.4 Multidisciplinary Design Optimization (MDO) - The contractor shall implement and evaluate new MDO methods on a variety of test problems ranging from simplified mathematical models to complex engineering models of conceptual or preliminary design processes for aerospace vehicles and spacecraft. The basic analytical codes shall be supplied by NASA; they would be comparable to the analysis codes utilized by the Contractor in performing the work outlined in Sections 4.0, 5.0, 6.0 and elsewhere in Section 3.0 of this document. The particular vehicle or spacecraft application and the design processes would be comparable to the studies described in Sections 3.1 - 3.3. The applications would cover traditional engineering design issues as well as full life-cycle considerations, which include requirements, manufacturing, operations, safety, cost and disposal as well as engineering design. The MDO methods to be implemented and evaluated include, but are not limited to sensitivity analysis techniques; rapid reanalysis methods; approximation methods; decomposition and re-composition techniques, MDO formulations, gradient-based optimization methods; discrete optimization methods; and methods for optimization under uncertainties. The applications shall be implemented under NASA-approved configuration control, using modern object-oriented programming techniques and, gene rally, in a distributed computing environment.

The Contractor shall provide realistic non-parametric and parametric disciplinary analysis models of vehicles and spacecraft, including, but not limited to, parametric CAD models, finite-element computational structural mechanics models, structured and unstructured computational fluid dynamics grids, computational electromagnetic grids and computational aeroacoustic grids.

The Contractor shall re-engineer analysis codes supplied by NASA. The re-engineering may include converting legacy code into modern structured code, converting Fortran code into ASCI-standard Fortran 77 or Fortran 90 code, and converting a code from an interactive mode into an automated, batch mode.

The Contractor shall serve as a disciplinary analyst on MDO applications teams. The disciplinary analyst would be responsible for preparing the relevant discipline analysis code for integration into an MDO application, validating a stand-alone version of the discipline analysis code, supporting the validation of the analysis code as integrated into the full MDO application, and providing the relevant disciplinary interpretation of the results from the MDO application. The disciplines and analysis tools would be comparable to those described in Sections 4.0, 5.0, 6.0 and elsewhere in Section 3.0 of this document

4.0 Engineering and Operations Support

4.1 Flight Project Design, Engineering, and Development - The Contractor shall provide the design, development, testing, integration, operation, and data retrieval for aeronautics and space flight programs, including the support of mechanical and electronic design of systems for both ground-based and flight (balloon, rotorcraft, aircraft, and spacecraft) use. The Contractor shall develop state-of-the-art measurement techniques, data retrieval and data processing systems required in current and future Langley projects. The Contractor shall complete technical design and analysis tasks such as mechanical design/engineering, electronic design/engineering, controls, thermal and structural analysis and design, electro-optics sensor and detector design/engineering for systems that may form a part of larger systems. The Contractor shall use electronic design and analysis tools that are consistent with those used by the government so that output can be consolidated with that of higher level processes.

4.2 Project Planning - The Contractor shall complete tasks involving focused technology projects, basic research projects, facilities test planning, flight operations and space projects, and construction of facility projects. The scheduling system provided by the Contractor shall be a component of the project performance measurement plans. The Contractor shall prepare standard analytical reports, which include critical path analysis, contingency evaluation schedules, status impact assessments, problem analysis, and recommended solutions. The Contractor shall develop planning/scheduling software applications, which include menus for user friendly access and data entry, standard tabular reports and graphics for data output. The Contractor shall develop routines for the exchange of data between different software packages. The Contractor shall prepare parametric cost estimates for comparison with internally-generated estimates for various Langley technical projects.

4.3 Aircraft and Aircraft Systems- The Contractor shall perform tasks supporting the operation of aircraft, as well as their associated experimental systems.

The Contractor shall perform tasks involving the operation of the experimental systems of the Transport Research Facility (TRF) and the Flight System Integration Laboratory (FSIL). Specific tasks will address navigation engineering, flight management systems, guidance systems, flight controls, digital avionics systems interface, installation of flight qualified hardware in the FSIL, and experimental systems documentation. The Contractor shall maintain configuration control and documentation for designated experimental systems.

Other task areas of aircraft operations include the operation, maintenance, and repair of the Langley Flight Operations Support Center and Metro (Meteorology and Dispatch), and operations engineering functions.

The Contractor shall provide pilots for the Langley general aviation aircraft (currently BE-200 (King Air)) and co-pilots for the Langley B-757 aircraft. The B-757 co-pilots shall be provided on an "on-call" basis when required to meet project commitments. The pilots must be qualified and have current certification for the operation of the aircraft.

5.0 Aeronautics, Aerothermodynamics, and Acoustics Research

5.1 Hypersonic Research and Development - The Contractor shall provide support in the general areas of experimental and computational aerothermodynamics, hypersonic airbreathing propulsion systems, wind tunnel studies, and system evaluations. The Contractor shall interpret and analyze experimental data and apply and upgrade computational methods and phenomenological models. This support includes timely generation of both surface and volume grids for CFD and Direct Simulation Monte Carlo (DSMC) codes as well as routine maintenance and implementation of upgrades of the actual software as required to ensure state-of-the-art computing capability. Analyses shall determine the flowfield physics about a variety of configurations required to quantify the performance of fully integrated (tip-to-tail) airbreathing propulsion vehicles and aerospace vehicles.

The Contractor shall perform aerothermodynamic assessment and optimization of advanced aerospace vehicle concepts via the application of unstructured, inviscid solvers, such as the FELISA code. The Contractor shall perform maintenance and upgrades to the codes such as the incorporation of real gas effects.

5.2 Aerodynamics Research and Development - The Contractor shall provide support in the areas of: wind tunnel testing of advanced aircraft concepts and components, including rotorcraft; development of advanced wind tunnel testing technology; and applied computational fluid dynamics. Included in the field of wind tunnel testing and testing technology development are: test participation, instrumentation selection, development and use of advanced measurement techniques, development of advanced wind tunnel testing techniques, and the implementation of uncertainty analysis as a standard practice in wind tunnel research. The wind tunnels cover the speed range from low subsonic to hypersonic and include conventional as well as cryogenic facilities.

In the area of computational dynamics, the Contractor shall develop and apply computational codes to study aircraft designs, airframe/propulsion integration, and aircraft performance throughout the speed regime from low subsonic to hypersonic. Also included will be the development and application of advanced grid generation concepts.

The Contractor shall be responsible for maintaining, upgrading, certification, and version control of unstructured grid, Navier-Stokes flow solver codes and related codes. The Contractor shall provide user support for the codes including training new users and troubleshooting problems.

5.3 Acoustics and Flow Physics Research and Development -The Contractor shall provide analytical, computational, and experimental support for flow physics and acoustics research and technology programs. The Contractor shall support both focused and basic research and technology development in the areas of aeroacoustics, including instrumentation, data acquisition and analysis, acoustic testing of rotors, jets, ducted fans in wind tunnels, anechoic chambers, or outdoors. The Contractor shall perform tasks in structural acoustics, including prediction and control of noise transmission and structural response, experimental and analytical methods for acoustic liner technology, digital control systems and their implementation to noise and vibration control problems. The Contractor shall provide coding, upgrading, and maintenance of large multipurpose computer programs, test subjects for psychoacoustic testing, operation of psychoacoustic test facilities, support for wind-tunnel experiments, support for flight experiments, and modifications to analysis codes for effective performance on distributed workstations and massively parallel computers. The Contractor shall provide support for structural-acoustic finite element/boundary element model development using codes such as MSC/NASTRAN and COMET/Acoustics. The contractor shall perform experimental validation and correction of these models using correlation analysis techniques. The Contractor shall provide laboratory support for design, development, calibration, and upgrades to acoustic facilities, test techniques, support equipment, and computer interfaces.

The Contractor shall perform tasks in laminar flow control, including advanced transition prediction and control methods and the effects of surface roughness/steps/gaps and inhomogeneities and attachment line contamination. The Contractor shall perform tasks utilizing aerodynamic and acoustic methods, including aerodynamic analyses of complex-geometry configurations using structured and unstructured-grid Euler and Reynolds-averaged Navier-Stokes methodologies.

The Contractor shall perform tasks in flow modeling and control, including large-eddy simulations of turbulent boundary layers and computations to study the effect of roughness, suction, and admittance on receptivity of three-dimensional boundary layers on swept wings.

The Contractor shall develop measurement science and technology, including image transmission and receiving optics, data acquisition systems, data analysis systems, ground based applications, systems to eliminate directional ambiguity, real-time analysis systems, applications to high-speed flow, digital electronics, software algorithms, computer interfacing, computer animation, Monte Carlo simulation, and particle scattering studies.

6.0 Structures and Materials Research

6.1 Structures Research and Technology Programs - The Contractor shall provide analytical and experimental support for structures research and technology programs. The Contractor shall support focused and basic research and technology development in the areas of structural mechanics, structural dynamics, aeroelasticity, thermal structures, and computational structures. The Contractor shall support investigations that quantify the response, failure, and structural integrity of composite and metallic aircraft, space transportation, and spacecraft structures. The Contractor shall develop innovative modeling methods for predicting composite and metallic component response, failure, and structural integrity of composite and metallic structures subjected to complex combined mechanical and thermal loading. The Contractor shall develop impact damage failure and damage tolerance criteria for through-the-thickness graded and multi-functional structures for aerospace applications. The

Contractor shall develop and integrate test methods and advanced structural response measurement techniques and support experimental research. The Contractor shall develop new equation solvers, eigenvalue extraction algorithms, and stiffness and mass matrix assembly techniques that enable efficient and rapid solutions on evolving computer systems. The Contractor shall develop efficient structural concepts for future space transportation systems, including durable thermal protection systems, reusable cryogenic tanks, and cooled-structure concepts by developing and using appropriate optimization methods. The Contractor shall support analyses and tests of aeroelastically scaled models of fixed-wing and rotary-wing vehicles, including performance, the control of aeroelastic instabilities, loads, vibration, flutter, buffet, buzz, gust response, limit cycle oscillations, and adverse structural response. The Contractor shall develop simulations, ground tests, wind-tunnel tests, and flight experiments. The Contractor shall develop analytical methods to perform vibration, aeroelastic, and aeroservoelastic studies; analytical and experimental studies to predict, verify, and control the dynamic response of spacecraft structures; and studies to advance the safety and ground handling performance of aircraft during all-weather takeoff and landing operations.

6.2 Materials Research and Technology Programs - The Contractor shall support research to develop advanced light metallic alloys, polymers and polymeric matrix composites, carbon-carbon composites, and ceramic-based materials. This research includes the development of metal forming and joining technology, polymer matrix composite processing and fabrication technology, adhesive bonding and sealant technology, and carbon-carbon and ceramics processing and coating technology. Materials characterization testing shall be conducted to measure chemical, physical, electrical, optical, and mechanical properties of metals and composites. Experimental studies shall be conducted to characterize the effects of the environment on the long-term durability of materials for aircraft and spacecraft. Mechanics models shall be developed to predict the stiffness, strength, durability, and damage tolerance of composite materials. Fracture mechanics methodologies shall be developed to predict the strength and fatigue life of metallic materials. Advanced sensors, electronics, and signal processing technology shall be developed for nondestructive examination systems, including integrated vehicle health management. Advanced sensor technologies shall be developed for smart materials and structures, and for in-situ process monitoring and quality control. R&D support tasks shall include operation of a wide variety of equipment used for materials processing, mechanical testing, and materials analysis. The following are examples of typical materials support tasks:

6.2.1 Operation of metals processing laboratory equipment for deposition, consolidation, heat treatment, forming, and joining of metallic materials, including plasma spray deposition system, chemical and physical vapor deposition systems, laser deposition system, hot isostatic press, vacuum hot press, biaxial superplastic forming system, friction stir weld system, resistance spot weld system, heat treatment furnaces, salt baths, cold-rolling mill; operation of surface preparation facilities for chemical cleaning, chemical milling, and anodizing; operation of mechanical property characterization equipment and data acquisition systems for measurement of tensile, compressive, toughness, fatigue, and creep behavior of specimens and structural subelements at temperatures ranging from -450°F (liquid helium temperature) to 2500°F; metallurgical specimen preparation; identification and quantification of metallurgical phases, morphologies, and chemistries through application of advanced metallurgical analysis techniques including optical microscopy, scanning and transmission electron microscopy, texture and microtexture analysis, energy and wavelength dispersive spectroscopy, x-ray and electron diffraction, differential scanning calorimetry, differential thermal analysis, hardness and microhardness, inductively-coupled plasma, atomic absorption; support of failure analyses of structural components; support in the development and application of lightweight coatings and surface modification techniques for environmental resistance and thermal control.

6.2.2 Operation of laboratory equipment required for chemical characterization of high performance polymers, adhesives and polymer matrix composites. Typical measurement methods shall include: Fourier Transform Infrared Spectroscopy, High Pressure Liquid Chromatography, Gel Permeation Chromatography, Low Angle Laser Light Scattering Photometry, Differential Viscometry and Osmometry.

6.2.3 Performance of laboratory tests in support of the fabrication of advanced composite subcomponents. Supporting tasks shall include: tests to establish processing methods, development of improved methods for subelement fabrication, design of test fixtures and associated apparatus, and operation of test machines to measure mechanical and physical properties.

6.2.4 Performance of laboratory tests in support of the materials durability, pressurized liquid permeation, and fatigue and fracture research.

7.0 Airborne Systems Research and Development

Flight Dynamics, Guidance and Control Research and Technology -The Contractor shall develop analytical, mathematical models of aircraft and spacecraft; synthesize and analyze navigation, guidance, and control systems for aircraft and spacecraft; develop efficient and reliable numerical methods and optimization algorithms for use in guidance and control law synthesis; provide data acquisition and reduction support, and analyze data from dynamics, control and/or crew systems experiments, including simulation and flight tests, some involving extensive meteorological data; coordinate the design and construction of models, conduct static and dynamic (free spin, tumble, forced oscillation) wind tunnel model tests, and analyze the results; use engineering codes and CFD methodologies to predict aircraft flight dynamics and correlate these results with experimental data; develop and maintain computer-based, high-fidelity aircraft and spacecraft batch simulation software; develop and apply software tools for simulation data analysis, including studies with simulated air traffic environments; conduct piloted aircraft simulation studies; develop software modifications for an existing atmospheric modeling CFD code; develop and operate the hardware and software components of electro-optical sensing and processing systems; develop and operate drop model and free-flight model test integrated hardware and software systems, including control law software appropriate displays, and necessary network communications; configure and operate physiological signal and behavioral data acquisition systems, develop appropriate software tools for analysis of data from such systems, and perform the analysis; synthesize and analyze transport flight deck systems, including displays and underlying algorithms; provide operational airline, corporate, and private pilot and air traffic controller expertise to support the planning, development, conduct and flight validation of aircraft simulation studies in simulated air traffic environments.

8.0 General Mission Support

8.1 Information and Electromagnetic Systems Technology - The Contractor shall provide support for research and technology development in selected technical areas in the information systems and electromagnetic systems disciplines. The areas include: the design and development of electronic hardware for information and electromagnetic systems; the design and development of computer codes for the analysis of complex sensor, antenna and digital computer systems; the development of design and assessment methods for life-critical systems; and maintenance and operation of research laboratories. Additional information regarding support for these areas is as follows:

8.1.1 Design and Development of Electronic Hardware - The Contractor shall provide support for sensor technology development and testing, digital circuit and microprocessor designs, mechanical and structural designs, computational models for predicting fluid flow in reduced gravity environments and optical/fiber-optic system fabrication and evaluation.

8.1.2 Design and Development of Computer Codes - The Contractor shall provide support for design, development, modeling, simulation, and implementation of computer codes for the design and assessment of antenna systems, airport systems, flight crucial digital systems and electromagnetic fields.

8.1.3 Development of Design and Assessment Methods - The Contractor shall develop techniques for the design and assessment of fault-tolerant, life-critical systems for aerospace applications. These techniques may use formal specifications, automatic theorem proving, hierarchical design methodologies, fault-tolerant systems theory, and reliability theory as well as other available capabilities.

8.1.4 Maintenance and Operation of Research Laboratories - The Contractor shall be responsible for the maintenance and operation of Information and Electromagnetic Technology research facilities including but not limited to: compact range, experimental test range, low frequency antenna chamber, High Intensity Radiation Laboratory test chambers, microgravity crystal growth facility, the crystal vapor deposition facility and the vehicle emulator system.

8.2 Ground Test Systems and Test Technique Development - The Contractor shall design and implement data acquisition and reduction systems, instrumentation systems and test processes for research testing in wind tunnel and laboratory environments. The Contractor shall use knowledge of the state-of-the-art in instrumentation and measurement systems such as laser velocimetry, data acquisition and reduction methodology, data quality assurance, and processing systems to support new and on-going programs in acoustical, structural, and aerospace research programs.

The Contractor shall use the latest technology to develop innovative test techniques, test hardware, and systems to support the ground facility testing at Langley, and general reductions in test cycle times. Test techniques/systems will be used in laboratory as well as wind tunnel test environments. The Contractor shall complete technical design, analysis, and fabrication tasks in mechanical, electrical and or electronic, thermal, chemical and optical measurement systems to support aerodynamic, structural and acoustical testing.

8.3 Independent Assessment - The contractor shall provide assessments and evaluations of concepts, problems and proposals for general mission support, aeronautic and aerospace research programs, earth and space science programs, and engineering activities.

9.0 Electronic Task Order System

The Contractor shall establish, implement, and maintain management control systems required to plan, organize, direct, and control contract activities. The Contractor shall automate the task flow process as defined in the Task Order clauses of this contract in a manner that is consistent with Center information technology standards. The automated system shall allow for the electronic routing, review, approval, issuance, and modification of Task Orders with the use of password security for the individuals identified in the Task Order clauses of this contract, with initiation, editing, and re-routing by each approver as needed, and with automatic notification to the approvers of the need for approval. In addition, the Contractor's automated management system shall track the status of Task Orders from planning to completion and record projected and actual resources data for each Task Order with graphic, tabular, and narrative descriptions. These Task Order data shall be the same information as that in the monthly progress and financial reports required in Exhibit B. At the discretion of the Contract Administrator and/or the COTR, these electronic versions may be used in lieu of their respective paper copies.

SECTION E - INSPECTION AND ACCEPTANCE

E.1 INSPECTION OF SERVICES - COST-REIMBURSEMENT (FAR 52.246-5) (APR 1984)

(a) Definition. "Services," as used in this clause, includes services performed, workmanship, and material furnished or used in performing services.
(b) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the services under this contract. Complete records of all inspection work performed by the Contractor shall be maintained and made available to the Government during contract performance and for as long afterwards as the contract requires.
(c) The Government has the right to inspect and test all services called for by the contract, to the extent practicable at all places and times during the term of the contract. The Government shall perform inspections and tests in a manner that will not unduly delay the work.
(d) If any of the services performed do not conform with contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, for no additional fee. When the defects in services cannot be corrected by reperformance, the Government may (1) require the Contractor to take necessary action to ensure that future performance conforms to contract requirements and (2) reduce any fee payable under the contract to reflect the reduced value of the services performed.
(e) If the Contractor fails to promptly perform the services again or take the action necessary to ensure future performance in conformity with contract requirements, the Government may (1) by contract or otherwise, perform the services and reduce any fee payable by an amount that is equitable under the circumstances or (2) terminate the contract for default.

E.2 FINAL INSPECTION AND ACCEPTANCE (LaRC 52.246-94) (OCT 1992)

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

SECTION F - DELIVERIES OR PERFORMANCE

F.1 STOP-WORK ORDER (FAR 52.242-15) (AUG 1989) ALTERNATE I (APR 1984)

(a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either -

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Termination clause of this contract.

(b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule, the estimated cost, the fee, or a combination thereof, and in any other terms of the contract that may be affected, and the contract shall be modified, in writing, accordingly, if -

(1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; provided, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon the claim submitted at any time before final payment under this contract.

(c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.

(d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

F.2 PLACE OF DELIVERY (LaRC 52.211-92) (OCT 1992)

Delivery shall be f.o.b. destination:

As specified in task orders.

F.3 PLACE(S) OF PERFORMANCE (LaRC 52.211-98) (OCT 1992)

The place(s) of performance shall be NASA, Langley Research Center, Hampton, Virginia; other NASA Centers and other sites as may be designated by task orders.

F.4 PERIOD OF PERFORMANCE - TASK ORDERS (LaRC 52.211-112) (APR 1998)

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

B. Any task orders issued prior to the expiration of the period for issuance of task orders shall be completed, subject to the limitations specified in FAR 52.216-22, Paragraph (d).

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 AWARD FEE FOR SERVICE CONTRACTS (FAR 1852.216-76) (MAR 1998)

(a) The contractor can earn award fee from a minimum of zero dollars to the maximum stated in Section B, B.3, Award Fee.
(b) Beginning 6 months after the effective date of this contract, the Government shall evaluate the Contractor's performance every 6 months to determine the amount of award fee earned by the contractor during the period. The Contractor may submit a self-evaluation of performance for each evaluation period under consideration. These self-evaluations will be considered by the Government in its evaluation. The Government's Fee Determination Official (FDO) will determine the award fee amounts based on the Contractor's performance in accordance with the Award Fee Plan contained as Exhibit E to this contract. The plan may be revised unilaterally by the Government prior to the beginning of any rating period to redirect emphasis.
(c) The Government will advise the Contractor in writing of the evaluation results. The LaRC Financial Management Division will make payment based on issuance of unilateral modification by Contracting Officer.
(d) After 85 percent of the potential award fee has been paid, the Contracting Officer may direct the withholding of further payment of award fee until a reserve is set aside in an amount that the Contracting Officer considers necessary to protect the Government's interest. This reserve shall not exceed 15 percent of the total potential award fee.
(e) The amount of award fee which can be awarded in each evaluation period is limited to the amounts set forth through the issuance of task orders in accordance with Section G, G.12 and the distribution of fee on those task orders in accordance with Section B, B.3. Award fee which is not earned in an evaluation period cannot be reallocated to future evaluation periods.
(f) (1) Provisional award fee payments will not be made under this contract.
(2) Provisional award fee payments will be superseded by the final award fee evaluation for that period. If provisional payments exceed the final evaluation score, the Contractor will either credit the next payment voucher for the amount of such overpayment or refund the difference to the Government, as directed by the Contracting Officer.
(3) If the Contracting Officer determines that the Contractor will not achieve a level of performance commensurate with the provisional rate, payment of provisional award fee will be discontinued or reduced in such amounts as the Contracting Officer deems appropriate. The Contracting Officer will notify the Contractor in writing if it is determined that such discontinuance or reduction is appropriate. This determination is not subject to the Disputes clause.
(4) Provisional award fee payments will not be made prior to the first award fee determination by the Government.
(g) Award fee determinations made by the Government under this contract are not subject to the Disputes clause.

G.2 SUBMISSION OF VOUCHERS FOR PAYMENT(NASA 1852.216-87) (MAR 1998)

(a) The designated billing office for cost vouchers for purposes of the Prompt Payment clause of this contract is identified below. Public vouchers for payment of costs shall include a reference to the number of this contract.
(b)(1) If the Contractor is authorized to submit interim cost vouchers directly to the NASA paying office, the original voucher should be submitted to:

Attn: Financial Management Division, MS 175
NASA Langley Research Center
Hampton, VA 23681-2199

(2) For any period that the Defense Contract Audit Agency has authorized the Contractor to submit interim cost vouchers directly to the Government paying office, interim vouchers are not required

to be sent to the Auditor, and are considered to be provisionally approved for payment, subject to final audit.

(3) Copies of vouchers should be submitted as directed by the Contracting Officer.

(c) If the Contractor is not authorized to submit interim cost vouchers directly to the paying office as described in paragraph (b), the Contractor shall prepare and submit vouchers as follows:

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

[*Insert the appropriate NASA or DCAA mailing office address for submission of cost vouchers.*]

(2) Five copies of SF 1034, SF 1035A, or equivalent Contractor's attachment to the following offices by insertion in the memorandum block of their names and addresses:

(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.

(3) The Contracting Officer may designate other recipients as required.

(d) Public vouchers of payment of fee shall be prepared similarly to the procedures in paragraphs (b) or (c) of this clause, whichever is applicable, and be forwarded to:

Attn: _____, MS 126
NASA Langley Research Center
Hampton, VA 23681-2199

This is the designated billing office for fee vouchers for purposes of the Prompt Payment clause of this contract.

(e) In the event that amounts are withheld from payment in accordance with provisions of this contract, a separate voucher for the amount withheld will be required before payment for that amount may be made.

G.3 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:

Title	Office Code	Address (including zip code)
New Technology Representative	212	NASA, Langley Research Center Hampton, VA 23681-2199
Patent Representative	212	NASA, Langley Research Center Hampton, VA 23681-2199

(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.4 TECHNICAL DIRECTION (NASA 1852.242-70) (SEP 1993)

(a) Performance of the work under this contract is subject to the written technical direction of the Contracting Officer's Technical Representative (COTR), who shall be specifically appointed by the Contracting Officer in writing in accordance with NASA FAR Supplement 18-42.270. "Technical direction" means a directive to the Contractor that approves approaches, solutions, designs, or refinements; fills in details or otherwise completes the general description of work or documentation items; shifts emphasis among work areas or tasks; or furnishes similar instruction to the Contractor. Technical direction includes requiring studies and pursuit of certain lines of inquiry regarding matters within the general tasks and requirements in Section C of this contract.
(b) The COTR does not have the authority to, and shall not, issue any instructions purporting to be technical direction that -
(1) Constitutes an assignment of additional work outside the statement of work;
(2) Constitutes a change as defined in the changes clause;
(3) In any manner causes an increase or decrease in the total estimated contract cost, the fixed fee (if any), or the time required for contract performance;
(4) Changes any of the expressed terms, conditions, or specifications of the contract; or
(5) Interferes with the Contractor's rights to perform the terms and conditions of the contract.
(c) All technical direction shall be issued in writing by the COTR.
(d) The Contractor shall proceed promptly with the performance of technical direction duly issued by the COTR in the manner prescribed by this clause and within the COTR's authority. If, in the Contractor's opinion, any instructions or direction by the COTR falls within any of the categories defined in paragraph (b) above, the Contractor shall not proceed but shall notify the Contracting Officer in writing within 5 working days after receiving it and shall request the Contracting Officer to take action as described in this clause. Upon receiving this notification, the Contracting Officer shall either issue an appropriate contract modification within a reasonable time or advise the Contractor in writing within 30 days that the instruction or direction is -
(1) Rescinded in its entirety; or
(2) Within the requirements of the contract and does not constitute a change under the changes clause of the contract and that the Contractor should proceed promptly its performance.
(e) A failure of the Contractor and Contracting Officer to agree that the instruction or direction is both within the requirements of the contract and does not constitute a change under the changes clause, or a failure to agree upon the contract action to be taken with respect to the instruction or direction shall be subject to the Disputes clause of this contract.
(f) Any action(s) taken by the Contractor in response to any direction given by any person other than the Contracting Officer or the COTR shall be at the Contractor's risk.

G.5 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.

G.6 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.7 INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY(NASA 1852.245-71) (JUL 1997)

(a) The Government property described in the clause at 1852.245-77, List of Installation-Provided Property and Services, shall be made available to the contractor on a no-charge basis for use in performance of this contract. This property shall be utilized only within the physical confines of the NASA installation that provided the property. Under this clause, the Government retains accountability for, and title to, the property, and the contractor assumes the following user responsibilities:

(1) The user shall sign NASA Form 1602 for each individual piece of equipment assigned for his/her use.
(2) The user shall inform the NASA Property Custodian of any changes in location or user name and shall report immediately any property noted as missing.
(3) The user shall prepare Langley Form 52 or Langley Form 141 and obtain the required signatures before removing any Government property from Langley Research Center.

The Contractor shall establish and adhere to a system of written procedures for compliance with these user responsibilities. Such procedures must include holding employees liable, when appropriate, for loss, damage, or destruction of Government property.
(b) (1) The official accountable recordkeeping, physical inventory, financial control, and reporting of the property subject to this clause shall be retained by the Government and accomplished by the installation Supply and Equipment Management Officer (SEMO) and Financial Management Officer. If

this contract provides for the contractor to acquire property, title to which will vest in the Government, the following additional procedures apply:

(i) The contractor's purchase order shall require the vendor to deliver the property to the installation central receiving area;

(ii) The contractor shall furnish a copy of each purchase order, prior to delivery by the vendor, to the installation central receiving area;

(iii) The contractor shall establish a record of the property as required by FAR 45.5 and 1845.5 and furnish to the Industrial Property Officer a DD Form 1149 Requisition and Invoice/Shipping Document (or installation equivalent) to transfer accountability to the Government within 5 working days after receipt of the property by the contractor. The contractor is accountable for all contractor-acquired property until the property is transferred to the Government's accountability.

(iv) Contractor use of Government property at an off-site location and off-site subcontractor use require advance approval of the contracting officer and notification of the SEMO. The contractor shall assume accountability and financial reporting responsibility for such property. The contractor shall establish records and property control procedures and maintain the property in accordance with the requirements of FAR Part 45.5 until its return to the installation.

(b) (2) After transfer of accountability to the Government, the contractor shall continue to maintain such internal records as are necessary to execute the user responsibilities identified in paragraph (a) and document the acquisition, billing, and disposition of the property. These records and supporting documentation shall be made available, upon request, to the SEMO and any other authorized representatives of the contracting officer.

G.8 LIST OF INSTALLATION-ACCOUNTABLE PROPERTY AND SERVICES (NASA 18-52.245-77) (JUL 1997)

In accordance with the clause at 1852.245-71, Installation-Accountable Government Property, the Contractor is authorized use of the types of property and services listed below, to the extent they are available, in the performance of this contract within the physical borders of the installation which may include buildings and space owned or directly leased by NASA in close proximity to the installation, if so designated by the Contracting Officer.

The Contractor shall not bring to the installation for use under this contract any property owned or leased by the Contractor, or other property that the Contractor is accountable for under any other Government contract, without the Contracting Officer's prior written approval.

(a) Office space, work area space, office furniture, and utilities. No copiers, copying service, or office supplies will be provided. Government telephones are available for official purposes only; pay telephones are available for contractor employees for unofficial calls.

(b) Publications and blank forms stocked by the installation.

(c) Safety and fire protection for Contractor personnel and facilities.

(d) Medical treatment of a first-aid nature for Contractor personnel injuries or illnesses sustained during on-site duty.

(e) Cafeteria privileges for Contractor employees during normal operating hours.

(f) Building maintenance for facilities occupied by Contractor personnel.

(g) Moving and hauling for office moves, movement of large equipment, and delivery of supplies. Moving services shall be provided on-site, as approved by the Contracting Officer.

(h) The user responsibilities of the Contractor are defined in paragraph (a) of the clause at 1852.245-71, Installation-Accountable Government Property.

G.9 AWARD FEE EVALUATIONS (LaRC 52.216-92) (JUN 1990)

A. The Contractor's performance hereunder shall be evaluated each period by an Evaluation Board in accordance with an established evaluation plan. A copy of this plan shall be furnished to the Contractor on the effective date of this contract. This plan may be modified by the Government and a copy of any modification will be provided to the Contractor. The Board shall review the Contractor's performance for each period in the following areas:

Technical Performance
Management and Safety
Cost

B. The findings of the Board shall be reported to the Fee Determination Official (a cognizant individual at the program director level or higher of LaRC management) who will determine to what extent the Contractor's performance for the preceding award fee evaluation period warrants payment of some portion of the available award fee specified in Section G. In no event will any unawarded portion of fee for any evaluation period become available for award in subsequent periods.

C. The Contractor will be notified of the Fee Determination Official's determination of award fee by the Contracting Officer in a Notice of Award Fee, and such decision shall be binding on both parties and not subject to the Section I clause entitled "Disputes - Alternate I."

D. In the event this contract is terminated prior to a regularly scheduled award fee determination, the fee to be paid to the Contractor shall be an appropriate portion of any available award fee, as may be determined by the Fee Determination Official.

E. The Contractor may submit evaluation plan recommendations pertinent to evaluation criteria, methods of measurement, definitions, ground rules, relative importance, etc., to the Contracting Officer. Such recommendations may be for the initial evaluation period or for subsequent periods. Recommendations for the initial period should be received by the Contracting Officer no later than the effective date of the contract and for subsequent periods no later than thirty (30) days prior to the beginning of the period.

G.10 CONTRACT CLOSEOUT (LaRC 52.242-90) (MAY 1999)

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

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

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

Contract Closeout, the Contractor shall forward the said Completion Voucher directly to the cognizant Government Agency to which audit functions under the contract have been delegated.

G.11 PROVIDING FACILITIES TO CONTRACTORS (LaRC 52.245-90) (AUG 1997)

A. In accordance with FAR 45.302-1, it is policy of the Government that Contractors shall furnish all facilities required for performing Government contracts. "Facilities" include general purpose, off-the-shelf equipment, machine tools, test equipment, and vehicles. "Facilities" do not include material, special test equipment, special tooling or agency-peculiar property. In keeping with the policy set forth in FAR 45.302-1, the Government will not provide facilities.

B. Notwithstanding the "Allowable Cost and Payment" clause of this contract, cost of facilities are not an allowable cost except when charged to this contract in accordance with your approved accounting system.

C. The Contractor shall supply and maintain automatic data processing (ADP) equipment for their use on this contract. The Contractor shall also supply and maintain software loaded on this ADP equipment. The equipment and software shall be compatible with the Langley Organization being supported

D. NASA will furnish specialized software (e.g. graphics) including the upgrades as required for contract performance. This specialized software will be delineated on a task order basis. In addition, NASA will provide access to workstations on an as-needed basis per task order.

G.12 TASK ORDERS

A. The Contracting Officer or his/her authorized representative will issue task orders to the Contractor, providing specific authorization or direction to perform work within the scope of the Statement of Work specified in Section C. The Contractor may incur costs under the contract in performance of task orders and task order modifications issued in accordance with this clause. No other costs are authorized unless otherwise specified in the contract or expressly authorized by the Contracting Officer.

B. Prior to issuing a task order, the Contracting Officer shall provide the Contractor with the following data:

1. A description of the work identifying the objectives or results desired from the contemplated task order.
2. Proposed performance standards to be used as criteria for determining whether the work requirements have been met.

C. Within **15 calendar days**, or another time if mutually agreed to by the parties, after receipt of the Contracting Officer's request, the Contractor shall submit a task plan which includes the information below:

1. Discussion of the technical approach for performing the work.
2. The total estimated cost and fee for completion of the task order in accordance with G.13, Schedule of Rates for Task Orders, to include the following:
   a. Direct Labor estimate by category including hours.
   b. The travel and material estimates.
   c. An estimate for subcontractors and consultants.
   d. Estimated computer use time required, if applicable.
   e. Indirect costs.
   f. Other pertinent information
   g. Monthly spending profile
   h. The Government may require the Contractor to provide the cost information as defined in Paragraphs (a) through (g) above for subtasks within an overall task order.
   i. Proposed fee to be assigned to the task order, including proposed distribution of fee for achievement of specific milestones will become part of the award fee pool in the period in which

the milestone is projected to be achieved. All other fee associated with a task order will go into the award fee pool for the period in which the task is required to be completed.

3. The task plan, once negotiated/accepted by the Government, represents the baseline to be used for reporting in columns 7b and 7d of NASA Form 533M (See Exhibit B, Paragraph I.B)

D. After the Contracting Officer's Technical Representative (COTR), Technical Monitor and the Contractor have signed the task plan, the Contracting Officer or his authorized representative may issue a task order to the Contractor containing, as a minimum, the following:

1. Task Order number and date.
2. Description of the work identifying the objectives or results desired from the task order, including special instructions or other information necessary for performance of the task.
3. Performance standards/metrics
4. Total estimated cost and award fee
5. Any other resources (travel, materials, equipment, facilities, etc.) authorized.
6. Delivery/performance schedule.

E. The Contractor shall provide acknowledgment of receipt to the Contracting Officer within **3 working days** after receipt of the task order.

F. The Contracting Officer may amend tasks in the same manner in which they were issued.

G. In the event of a conflict between the requirements of the task order and the Contractor's approved task plan, the task order shall prevail.

H. If time constraints do not permit issuance of a fully defined task order in accordance with the procedures described in Paragraphs (A) through (D), a task order which includes a ceiling price may be issued as determined by the Contracting Officer.

G.13 SCHEDULE OF RATES FOR TASK ORDERS (LANGLEY)

The Contractor shall **only** use the rates set forth below in establishing the estimated cost of each Task Order. Labor Categories may be added upon bilateral agreement provided the technical requirements warrant additions.

CONTRACT YEAR-1					
	Category I	Category II	Category III	Category IV	Category V
LABOR CLASSIFICATION					
Technical Professional:					
Computer Scientist					
Programmer					
System Analyst					
Engineer					
Project Manager					
Engineer Supervisor					
Research Scientist					
Senior Scientist					
Operational Aircraft Pilot					
Support Personnel:					
Admin. Associate					
Project Planner					
Programmer					
Documentarian					
Scheduler/Cost Analyst					
Air Traffic Controller					
Technician:					
Electronic Technician					
Test Assistant					
Designer					
Mechanical Technician					
Test Conductor					
Engineering Associate					
Indirect Rates					

CONTRACT YEAR-2					
	Category I	**Category II**	**Category III**	**Category IV**	**Category V**
LABOR CLASSIFICATION					
Technical Professional:					
Computer Scientist					
Programmer					
System Analyst					
Engineer					
Project Manager					
Engineer Supervisor					
Research Scientist					
Senior Scientist					
Operational Aircraft Pilot					
Support Personnel:					
Admin. Associate					
Project Planner					
Programmer					
Documentarian					
Scheduler/Cost Analyst					
Air Traffic Controller					
Technician:					
Electronic Technician					
Test Assistant					
Designer					
Mechanical Technician					
Test Conductor					
Engineering Associate					
Indirect Rates					

	CONTRACT YEAR-3				
	Category I	Category II	Category III	Category IV	Category V
LABOR CLASSIFICATION					
Technical Professional:					
Computer Scientist					
Programmer					
System Analyst					
Engineer					
Project Manager					
Engineer Supervisor					
Research Scientist					
Senior Scientist					
Operational Aircraft Pilot					
Support Personnel:					
Admin. Associate					
Project Planner					
Programmer					
Documentarian					
Scheduler/Cost Analyst					
Air Traffic Controller					
Technician:					
Electronic Technician					
Test Assistant					
Designer					
Mechanical Technician					
Test Conductor					
Engineering Associate					
Indirect Rates					

CONTRACT YEAR-4					
	Category I	**Category II**	**Category III**	**Category IV**	**Category V**
LABOR CLASSIFICATION					
Technical Professional:					
Computer Scientist					
Programmer					
System Analyst					
Engineer					
Project Manager					
Engineer Supervisor					
Research Scientist					
Senior Scientist					
Operational Aircraft Pilot					
Support Personnel:					
Admin. Associate					
Project Planner					
Programmer					
Documentarian					
Scheduler/Cost Analyst					
Air Traffic Controller					
Technician:					
Electronic Technician					
Test Assistant					
Designer					
Mechanical Technician					
Test Conductor					
Engineering Associate					
Indirect Rates					

CONTRACT YEAR-5					
	Category I	Category II	Category III	Category IV	Category V
LABOR CLASSIFICATION					
Technical Professional:					
Computer Scientist					
Programmer					
System Analyst					
Engineer					
Project Manager					
Engineer Supervisor					
Research Scientist					
Senior Scientist					
Operational Aircraft Pilot					
Support Personnel:					
Admin. Associate					
Project Planner					
Programmer					
Documentarian					
Scheduler/Cost Analyst					
Air Traffic Controller					
Technician:					
Electronic Technician					
Test Assistant					
Designer					
Mechanical Technician					
Test Conductor					
Engineering Associate					
Indirect Rates					

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 LIMITATION OF FUTURE CONTRACTING (NASA 1852.209-71) (DEC 1988)

(a) The Contracting Officer has determined that this acquisition may give rise to a potential organizational conflict of interest. Accordingly, the attention of all prospective offerors is invited to FAR Subpart 9.5--Organizational Conflicts of Interest.

(b) The nature of this conflict is: The management of the evaluation of Announcements of Opportunity (AO) process; the management of External Readiness Reviews and assessment processes, the evaluation of the Contractor's own products; access to other companies proprietary data; and participation by the Contractor in the development of requirements and specifications for both software and hardware systems.

(c) The restrictions upon future contracting are as follows:

(1) If the Contractor, under the terms of this contract, or through the performance of tasks pursuant to this contract, is required to develop specifications or statements of work that are to be incorporated into a solicitation, the Contractor shall be ineligible to perform the work described in that solicitation as a prime or first-tier subcontractor under an ensuing NASA contract. This restriction shall remain in effect for a reasonable time, as agreed to by the Contracting Officer and the Contractor, sufficient to avoid unfair competitive advantage or potential bias (this time shall in no case be less than the duration of the initial production contract). NASA shall not unilaterally require the Contractor to prepare such specifications or statements of work under this contract.

(2) To the extent that the work under this contract requires access to proprietary, business confidential, or financial data of other companies, and as long as such data remains proprietary or confidential, the Contractor shall protect this data from unauthorized use and disclosure and agrees not to use them to compete with those other companies.

H.2 SECURITY PROGRAM/FOREIGN NATIONAL EMPLOYEE ACCESS REQUIREMENTS (LaRC 52.204-91) (FEB 2000)

Foreign nationals must meet the eligibility requirements outlined in NPG 1371.2 prior to performing any work under a contract. Eligibility determinations will be based solely on the scientific and technical contributions of the contractor, as outlined in the statement of work. Foreign nationals who meet the eligibility requirements will undergo a rigorous approval and investigative process prior to physical access to the Center and/or to NASA information. Foreign nationals must be sponsored by a NASA Civil Service employee. The sponsor must submit a formal request to the Security Office for access to the Center and/or NASA information, to include electronic information. The request will be processed through the Center's Export Administrator and subject to approval by the International Visits Coordinator. Normal processing time for a request is between 60 and 90 days depending on the nationality of the foreign national. All approvals will be for a maximum of one year, and must be resubmitted annually. Following approval, the foreign national will undergo a National Agency Check Investigation (NACI). As part of the NACI, the foreign national will submit a "Name Check Request" (NASA Form 531) and a completed "applicant" fingerprint card, to the LaRC Security Office, Mail Stop 450. Normal processing time for a NACI is between 90 to 120 days. Until the NACI is completed and favorably adjudicated, the foreign national will require complete escort from entry onto and exit off of the Center, and will not be allowed access to electronic information unless approved by the Center Information Technology Security Manager. Upon completion of the NACI, the foreign national will only be granted unescorted access to an approved workplace and to designated open areas during normal weekday work hours between 6:00 a.m. and 6:00 p.m. The foreign national will not be granted access during non-work hours, weekends, and holidays. Derogatory information developed concerning the foreign national may be grounds for visit termination.

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.

H.4 OBSERVATION OF REGULATIONS AND IDENTIFICATION OF CONTRACTOR'S EMPLOYEES (LaRC 52.211-104) (MAY 1999)

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 including all applicable Federal, NASA and Langley or other local installation safety, health, environmental and security regulations.

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 3:30 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) (JUN 1998)

Pursuant to FAR 15.204-1(b), the completed Section K of the proposal dated _____ is hereby incorporated herein by reference.

H.6 ADVANCE APPROVAL FOR RELEASE OF TECHNICAL INFORMATION (LaRC 52.227-92) (JUL 1998)

The Contractor shall not release technical information based on or containing data first produced in the performance of this contract and describing the work performed under this contract unless prior written approval is given by NASA. The Contractor shall submit technical information regarding the contract effort, such as journal articles, meeting papers, and technical documents to the Contracting Officer's Technical Representative (COTR) for review and concurrence with approval by the Center Export Administrator or designee prior to publication, presentation or release to others. The Contractor may proceed upon receipt of written concurrence by the COTR, unless directed otherwise in the COTR concurrence letter.

H.7 EVIDENCE OF INSURANCE (LaRC 52.228-94)(AUG 1993)

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). If the Government extends the term of the contract, the Contractor shall present such evidence to the Contracting Officer prior to performing under the extension.

H.8 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.9 QUALITY SYSTEM REQUIREMENTS (ISO 9001) (LaRC 52.246-95) (FEB 2000)

The Contractor's quality system shall be compliant with the requirements of ANSI/ISO/ASQC Q Q9001-1994, Quality Systems-Model for Quality Assurance in Design, Development, Production, Installation, and Servicing. If the Contractor's quality system is not already compliant with the requirements of ANSI/ISO/ASQC Q9001-1994, the Contractor shall develop quality system procedures and associated documentation to become compliant within **nine months** after the contract effective date. The Contractor's quality system shall remain in compliance with ANSI/ISO/ASQC Q9001-1994 during the term of the contract. The Government reserves the right to audit the Contractor's quality system at any time. The requirements of this clause do not flow down to subcontractors.

"Compliant" as used in this clause means that the contractor has defined, documented, and will continually implement during the term of the contract management-approved methods of operation that conform to the requirements given in the above-cited International Standard.

H.10 UNESCORTED ACCESS BY CONTRACTOR EMPLOYEES

Background investigations are required for Contractor employees to have unescorted access to the Langley Research Center. All Contractor employees must as a minimum have a favorably adjudicated National Agency Check (NAC). The NAC is not required if the Contractor can certify that an employee has a Confidential or higher security clearance or a favorably adjudicated current investigation. When it is necessary for an employee to perform work prior to completion of the NAC, the employee may be escorted while at the site by an individual who has a favorable NAC or a higher level of investigation favorably adjudicated, or a Confidential or higher level security clearance or as otherwise approved by the LaRC Security Officer.

H.11 YEAR 2000 COMPLIANCE (MAY 1998)

(a) Definition: "Year 2000 compliant," as used in this clause, means that the information technology (hardware, software and firmware, including embedded systems or any other electro-mechanical or processor-based systems used in accordance with its associated documentation) accurately processes date and date-related data (including, but not limited to, calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, and the Years 1999 and 2000 and leap year calculations, to the extent that other information technology, used in combination with the information technology being acquired, properly exchanges date and date-related data with it.

(b) Any information technology provided, operated and/or maintained under this contract is required to be Year 2000 compliant. To ensure this result, the Contractor shall provide documentation describing how the IT items or services demonstrate Year 2000 compliance.

(c) The Contractor warrants that any IT items or services provided under this contract that involve the processing of date and date-related data are Year 2000 compliant. If the contract requires that specific listed products must perform as a system in accordance with the foregoing warranty, then that warranty shall apply to those listed products as a system.

(d) The remedies available under this warranty shall include repair or replacement, at no additional cost to the Government, of any provided items or services whose non-compliance is discovered and made known to the Contractor in writing within 90 days after acceptance. In addition, all other the terms and limitations of the Contractor's standard commercial warranty or warranties shall be available to the Government for the IT items or services acquired under this contract. Nothing in this warranty shall be construed to limit any rights or remedies the Government may otherwise have under this contract with respect to defects other than Year 2000 performance.

SECTION I - CONTRACT CLAUSES

I.1 CLAUSES INCORPORATED BY REFERENCE (FAR 52.252-2) (FEB 1998)

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

http://www.arnet.gov/far/

http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm

A. Listing of Federal Acquisition Regulation (48 CFR Chapter 1) Clauses Incorporated by Reference

Clause Number	Clause Title
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)
52.204-2	Security Requirements (AUG 1996)
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)
52.211-15	Defense Priority and Allocation Requirements (SEP 1990)
52.215-2	Audit and Records--Negotiation (AUG 1996)
52.215-8	Order of Precedence--Uniform Contract Format (OCT 1997)
52.215-11	Price Reduction for Defective Cost or Pricing Data--Modifications (OCT 1997)
52.215-13	Subcontractor Cost or Pricing Data--Modifications (OCT 1997)
52.215-15	Pension Adjustments and Asset Reversions (DEC 1998)
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions (OCT 1997)
52.215-19	Notification of Ownership Changes (OCT 1997)
52.216-7	Allowable Cost and Payment (MAR 2000)
52.217-8	Option to Extend Services (NOV 1999)
52.219-6	Notice of Total Small Business Set-Aside (JUL 1996)
52.219-8	Utilization of Small Business Concerns (JAN 1999)
52.219-14	Limitations on Subcontracting (DEC 1996)
52.222-1	Notice to the Government of Labor Disputes (FEB 1997)
52.222-3	Convict Labor (AUG 1996)
52.222-4	Contract Work Hours and Safety Standards Act--Overtime Compensation (JUL 1995)
52.222-21	Prohibition of Segregated Facilities (FEB 1999)
52.222-26	Equal Opportunity (FEB 1999)
52.222-28	Equal Opportunity Preaward Clearance of Subcontracts(APR 1984) (DEVIATION)
52.222-35	Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (APR 1998)
52.222-36	Affirmative Action for Workers with Disabilities (JUN 1998)

52.222-37	Employment Reports on Disabled Veterans and Veterans of the Vietnam Era (JAN 1999)
52.222-41	Service Contract Act of 1965, as amended (MAY 1989)
52.223-3	Hazardous Material Identification and Material Safety Data (JAN 1997)--Alternate I (JAN 1997)
52.223-5	Pollution Prevention and Right-To-Know Information (APR 1998)
52.223-6	Drug-Free Workplace (JAN 1997)
52.223-14	Toxic Chemical Release Reporting (OCT 1996)
52.225-13	Restrictions on Certain Foreign Purchases (FEB 2000)
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 (FAR 52.227-11) (Short Form) (JUN 1989) - as modified by NASA FAR Supplement 18-52.227-11
52.227-14	Rights In Data--General (JUN 1987) (Alternate II) (JUN 1987) and Alternate IV (JUN 1987) – as modified by NASA FAR Supplement 1852.227-14
52.227-16	Additional Data Requirements (JUN 1987)
52.228-7	Insurance--Liability to Third Persons (MAR 1996)
52.232-9	Limitation on Withholding of Payments (APR 1984)
52.232-17	Interest (JUN 1996)
52.232-22	Limitation of Funds (APR 1984)
52.232-23	Assignment of Claims (JAN 1986)
52.232-25	Prompt Payment (JUN 1997)
52.232-34	Payment by Electronic Funds Transfer--Other Than Central Contractor Registration (MAY 1999)
52.233-1	Disputes (DEC 1998)--Alternate I (DEC 1991)
52.233-3	Protest After Award (AUG 1996)--Alternate I (JUN 985)
52.237-2	Protection of Government Buildings, Equipment, and Vegetation (APR 1984)
52.237-3	Continuity of Services (JAN 1991)
52.239-1	Privacy or Security Safeguards (AUG 1996)
52.242-1	Notice of Intent to Disallow Costs (APR 1984)
52.242-3	Penalties for Unallowable Costs (OCT 1995)
52.242-4	Certification of Final Indirect Costs (JAN 1997)
52.242-13	Bankruptcy (JUL 1995)
52.243-2	Changes--Cost-Reimbursement (AUG 1987)--Alternate V (APR 1984)
52.244-5	Competition in Subcontracting (DEC 1996)
52.245-5	Government Property (Cost-Reimbursement, Time-and- Material, or Labor-Hour Contracts) (JAN 1986) (Deviation) (JUL 1995)
52.246-5	Inspection of Services--Cost-Reimbursement (APR 1984)
52.246-25	Limitation of Liability - Services (FEB 1997)
52.248-1	Value Engineering (FEB 2000)
52.249-6	Termination (Cost-Reimbursement) (SEP 1996)
52.249-14	Excusable Delays (APR 1984)
52.253-1	Computer Generated Forms (JAN 1991)

B. Listing of NASA FAR Supplement (48 CFR CHAPTER 18) Clauses Incorporated by Reference

1852.208-81	Restrictions on Printing and Duplicating (AUG 1993)
1852.216-89	Assignment and Release Forms (JUL 1997)
1852.219-74	Use of Rural Area Small Businesses (SEP 1990)
1852.219-76	NASA 8 Percent Goal (JUL 1997)
1852.223-74	Drug and Alcohol-Free Workforce (MAR 1996)
1852.225-70	Export Licenses (FEB 2000)
1852.228-71	Aircraft Flight Risks (DEC 1988)
1852.228-75	Minimum Insurance Coverage (OCT 1988)

1852.235-70	Center for AeroSpace Information (JUN 1998)
1852.237-70	Emergency Evacuation Procedures (DEC 1988)
1852.242-71	Travel Outside of the United States (DEC 1988)
1852.242-72	Observance of Legal Holidays (AUG 1992)--Alternate I (SEP 1989) and Alternate II (SEP 1989)
1852.243-71	Shared Savings (MAR 1997)
1852.244-70	Geographic Participation in the Aerospace Program (APR 1985)
1852.245-71	Installation-Accountable Government Property (JUN 1998)

c. Listing of Clauses in Full Text

The clauses listed below follow in full text:

52.252-2	Clauses Incorporated by Reference (FEB 1998)
52.215-21	Requirements for Cost and Pricing Data or Information Other Than Cost or Pricing Data - Modifications (OCT 1997)
52.216-18	Ordering (OCT 1995)
52.216-19	Order Limitations (OCT 1995)
52.216-22	Indefinite Quantity (OCT 1995)
52.222-2	Payment for Overtime Premiums (JUL 1990)
52.222-21	Prohibition of Segregated Facilities (FEB 1999)
52.222-42	Statement of Equivalent Rates for Federal Hires (MAY 1989)
52.227-23	Rights to Proposal Data (Technical) (JUN 1987)
52.244-2	Subcontracts (AUG 1998)--Alternate I (AUG 1998)
52.244-6	Subcontracts for Commercial Items and Commercial Components (OCT 1998)
52.252-6	Authorized Deviations in Clauses (APR 1984)
1852.204-75	Security Classification Requirements (SEP 1989)
1852.204-76	Security Requirements for Unclassified Automated Information Resources (SEP 1993)
1852.215-84	Ombudsman (OCT 1996)
1852.223-70	Safety and Health (MAR 1997)
1852.246-72	Material Inspection and Receiving Report (JUN 1995)

I.2 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA--MODIFICATIONS (FAR 52.215-21) (OCT 1997)

(a) Exceptions from cost or pricing data.

(1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.403-4 on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--

(i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.

(ii) Information on modifications of contracts or subcontracts for commercial items.

(A) If--

(1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item; and

(2) The modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the

acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

(B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include--

(1) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.

(2) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market.

(3) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.

(2) The Contractor grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this clause, and the reasonableness of price. For items priced using catalog or market prices, or law or regulation, access does not extend to cost or profit information or other data relevant solely to the Contractor's determination of the prices to be offered in the catalog or marketplace.

(b) Requirements for cost or pricing data. If the Contractor is not granted an exception from the requirement to submit cost or pricing data, the following applies:

(1) The Contractor shall submit cost or pricing data and supporting attachments in accordance with Table 15-2 of FAR 15.408.

(2) As soon as practicable after agreement on price, but before award (except for unpriced actions), the Contractor shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.406-2.

I.3 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 the effective date of the contract through 60 months from the effective date if the contract.

(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.

I.4 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.

(b) *Maximum order*. The Contractor is not obligated to honor--

(1) Any order for a single item in excess of **$100,000,000**;

(2) Any order for a combination of items in excess of **$100,000,000**; or

(3) A series of orders from the same ordering office within **10 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 **10 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.

I.5 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 **12 months from the end of the contract effective period**.

I.6 PAYMENT FOR OVERTIME PREMIUMS (FAR 52.222-2) (JUL 1990)

(a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed **$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.

I.7 PROHIBITION OF SEGREGATED FACILITIES (FAR 52.222-21) (FEB 1999)

(a) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

I.8 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (FAR 52.222-42) (MAY 1989)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR Part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY: IT IS NOT A WAGE DETERMINATION

Employee Class	Monetary Wage
Electronics Tech-Maintenance	$15.02
Instrument Mechanic	$15.02
Technical Support Engineering	$18.27
Computer Operations	$16.59
Mechanical Technicians	$15.02
Electronics Technicians	$15.02

FRINGE BENEFITS

Annual Leave - Receives 13 days paid leave for service up to 3 years; 20 days for 3 to 15 years service; and 26 days for 15 years service or over.

Sick Leave - Receives 13 days paid leave per year.

Holidays - Receives 10 paid holidays per year.

Health Insurance - Government pays up to 60% of health insurance.

Group Life Insurance - Government pays two-thirds of life insurance rate premiums.

Retirement - The Government provides three retirement plans identified as the Civil Service Retirement System (CSRS), the Federal Employees Retirement System (FERS), and the CSRS Offset. Under the CSRS, the Government contributes 7% of the employees' base pay towards the retirement benefit and 1.45% towards Medicare. Under the FERS, the Government contributes 11.4% of the employees' base pay towards a basic benefit plan, 6.2% to Social Security, 1.45% towards Medicare,

and 1% (plus matching contributions of up to 4% of basic pay, depending on employees' contributions) to a thrift savings plan. Under the CSRS Offset, the Government contributes 0.8% of the employees' base pay towards the retirement benefit, 6.2% to Social Security, and 1.45% towards Medicare.

Part-time Federal employees receive pro rata annual leave, sick leave, holiday leave, health insurance, and group life insurance benefits based on the number of hours worked.

I.9 RIGHTS TO PROPOSAL DATA (TECHNICAL) (FAR 52.227-23) (JUN 1987)

Except for data contained on pages ____, 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 _____, upon which this contract is based.

I.10 SUBCONTRACTS (FAR 52.244-2) (AUG 1998) ALTERNATE I (AUG 1998)

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

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

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

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

(b) This clause does not apply to subcontracts for special test equipment when the contract contains the clause at FAR 52.245-18, Special Test Equipment.

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

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

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

(2) Is fixed-price and exceeds--

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

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

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

_____

_____

_____

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

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

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

(iii) Identification of the proposed subcontractor.

(iv) The proposed subcontract price.

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

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

(vii) A negotiation memorandum reflecting--

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

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

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

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

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

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

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

(2) If the Contractor has an approved purchasing system and consent is not required under paragraph (c), (d), or (e) of this clause, the Contractor nevertheless shall notify the Contracting Officer reasonably in advance of entering into any (i) cost-plus-fixed-fee subcontract, or (ii) fixed-price subcontract that exceeds the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of this contract. The notification shall include the information required by paragraphs (f)(1)(i) through (f)(1)(iv) of this clause.

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

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

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

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

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

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

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

(k) Paragraphs (d) and (f) of this clause do not apply to the following subcontracts, which were evaluated during negotiations:

_____

_____

_____

I.11 SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (FAR 52.244-6) (OCT 1998)

(a) Definitions.

"Commercial item," as used in this clause, has the meaning contained in the clause at 52.202-1Definitions.

"Subcontract," as used in this clause, includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c) Notwithstanding any other clause of this contract, the Contractor is not required to include any FAR provision or clause, other than those listed below to the extent they are applicable and as may be required to establish the reasonableness of prices under Part 15, in a subcontract at any tier for commercial items or commercial components:

(1) 52.222-26, Equal Opportunity (E.O. 11246);

(2) 52.222-35, Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (38 U.S.C. 4212(a));

(3) 52.222-36, Affirmative Action for Workers with Disabilities (29 U.S.C. 793); and

(4) 52.247-64, Preference for Privately Owned U.S.-Flagged Commercial Vessels (46 U.S.C. 1241) (flow down not required for subcontracts awarded beginning May 1, 1996).

(d) The Contractor shall include the terms of this clause, including this Paragraph (d), in subcontracts awarded under this contract.

I.12 AUTHORIZED DEVIATIONS IN CLAUSES (FAR 52.252-6) (APR 1984)

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

(b) The use in this solicitation or contract of any NASA/FAR Supplement (48 CFR Chapter 18) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

I.13 SECURITY CLASSIFICATION REQUIREMENTS (NASA 1852.204-75) (SEP 1989)

Performance under this contract will involve access to and/or generation of classified information, work in a security area, or both, up to the level of **TOP SECRET**. See Federal Acquisition Regulation clause 52.204-2 in this contract and DD Form 254, Contract Security Classification Specification, Exhibit A.

I.14 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:

Building 1298 (Hypersonics), Building 1251 (Aircraft Survivability), Building 1244 (Aircraft Hanger), and other Controlled area, systems, programs and data as defined in individual Task Orders.

(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.

I.15 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.

I.16 SAFETY AND HEALTH (NASA 1852.223-70) (MAR 1997)

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

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

(c) The Contractor shall immediately notify and promptly report to the Contracting Officer or a designee any accident, incident, or exposure resulting in fatality, lost-time occupational injury, occupational disease, contamination of property beyond any stated acceptable limits set forth in the contract Schedule, or property loss of $25,000 or more arising out of work performed under this contract. The Contractor is not required to include in any report an expression of opinion as to the fault or negligence of any employee. Service contractors (excluding construction contracts) shall provide quarterly reports specifying lost-time frequency rate, number of lost-time injuries, exposure, and accident/incident dollar losses as specified in the contract Schedule. The Contractor shall investigate all work-related incidents or accidents to the extent necessary to determine their causes and furnish the Contracting Officer a report, in such form as the Contracting Officer may require, of the investigative findings and proposed or completed corrective actions.

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

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

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

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

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

(1) Written hazardous operating procedures for all hazardous operations.

(2) Qualification Standards for personnel involved in hazardous operations.

I.17 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 **two copies**, an original and **one copy**.

(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.

SECTION J - LIST OF ATTACHMENTS

Exhibit A	Contract Security Classification Specification, DD Form 254, 2 pages
Exhibit B	Contract Documentation Requirements, 4 pages
Exhibit C	Register of Wage Determination and Fringe Benefits, 1999, 9 pages
Exhibit D	Procedures for the Preparation and Approval of Contractor Reports for Langley Research Center, Form PROC./P-72, June 1998, 2 pages
Exhibit E	Draft Award Fee Evaluation Plan
Exhibit F	Safety and Health Plan
Exhibit G	Direct Labor Classification Descriptions

The following are located after the last section of this solicitation:

Attachment 1	Contract Pricing Proposal Cover Sheet
Attachment 2	Past Performance (PP) Form
Attachment 3	Representative Task Orders
Attachment 4	Cost Forms
Attachment 5	Draft RFP Questions and Answers
Attachment 6	Langley Management Procedures (LMS) Referenced in the Representative Task Orders
Attachment 7	Distribution of ARTS and SAERS Employees by NASA LaRC Building Number

EXHIBIT A

DEPARTMENT OF DEFENSE
CONTRACT SECURITY CLASSIFICATION SPECIFICATION

(The requirements of the DoD Industrial Security Manual apply to all security aspects of this effort.)

1. CLEARANCE AND SAFEGUARDING
   - A. FACILITY CLEARANCE REQUIRED: **Top secret**
   - B. LEVEL OF SAFEGUARDING REQUIRED: **NONE**

2. THIS SPECIFICATION IS FOR: (X AND COMPLETE AS APPLICABLE)
   - A. PRIME CONTRACT NUMBER
   - B. SUBCONTRACT NUMBER
   - C. SOLICITATION OR OTHER NUMBER — DUE DATE (YYMMDD): **6/16/00**

3. THIS SPECIFICATION IS: (X AND COMPLETE AS APPLICABLE)
   - [X] A. ORIGINAL (COMPLETE DATE IN ALL CASES) — DATE (YYMMDD): **5/1/00**
   - [ ] B. REVISED (SUPERSEDES ALL PREVIOUS SPECS) — REVISION NO. — DATE (YYMMDD)
   - [ ] C. FINAL (COMPLETE ITEM 5 IN ALL CASES) — DATE (YYMMDD)

4. IS THIS A FOLLOW-ON CONTRACT? [ ] YES [X] NO. IF YES, COMPLETE THE FOLLOWING:
   CLASSIFIED MATERIAL RECEIVED OR GENERATED UNDER _____ (PRECEDING CONTRACT NUMBER) IS TRANSFERRED TO THIS FOLLOW-ON CONTRACT.

5. IS THIS A FINAL DD FORM 254? [ ] YES [X] NO. IF YES, COMPLETE THE FOLLOWING:
   IN RESPONSE TO THE CONTRACTOR'S REQUEST DATED _____ RETENTION OF THE CLASSIFIED MATERIAL IS AUTHORIZED FOR THE PERIOD _____

6. CONTRACTOR (INCLUDE COMMERCIAL AND GOVERNMENT ENTITY (CAGE) CODE)

A. NAME, ADDRESS, AND ZIP CODE	B. CAGE CODE	C. COGNIZANT SECURITY OFFICE (NAME, ADDRESS, AND ZIP CODE)
TBD	TBD	TBD

7. SUBCONTRACTOR

A. NAME, ADDRESS, AND ZIP CODE	B. CAGE CODE	C. COGNIZANT SECURITY OFFICE (NAME, ADDRESS, AND ZIP CODE)
TBD	TBD	TBD

8. ACTUAL PERFORMANCE

A. Location	B. Cage Code	C. Cognizant Security Office (Name, Address, And Zip Code)
NASA LANGLEY RESEARCH CENTER	TBD	TBD

9. GENERAL IDENTIFICATION OF THIS PROCUREMENT
SYSTEM ANALYSIS AND MISSION SUPPORT (SAMS)

10. CONTRACTOR WILL REQUIRE ACCESS TO:	YES	NO
A. COMMUNICATIONS SECURITY (COMSEC) INFORMATION		X
B. RESTRICTED DATA		X
C. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION		X
D. FORMERLY RESTRICTED DATA		X
E. INTELLIGENCE INFORMATION		
(1) SENSITIVE COMPARTMENTED INFORMATION (SCI)		X
(2) NON-SCI		X
F. SPECIAL ACCESS INFORMATION	X	
G. NATO INFORMATION		X
H. FOREIGN GOVERNMENT INFORMATION		X
I. LIMITED DISSEMINATION INFORMATION		X
J. FOR OFFICIAL USE ONLY INFORMATION	X	
K. OTHER (SPECIFY) N/A		

11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:	YES	NO
A. HAVE ACCESS TO CLASSIFIED INFORMATION ONLY AT ANOTHER CONTRACTOR'S FACILITY OR A GOVERNMENT ACTIVITY	X	
B. RECEIVE CLASSIFIED DOCUMENTS ONLY		X
C. RECEIVE AND GENERATE CLASSIFIED MATERIAL		X
D. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE		X
E. PERFORM SERVICES ONLY	X	
F. HAVE ACCESS TO U.S. CLASSIFIED INFORMATION OUTSIDE THE U.S., PUERTO RICO, U.S. POSSESSIONS AND TRUST TERRITORIES		X
G. BE AUTHORIZED TO USE THE SERVICES OF DEFENSE TECHNICAL INFORMATION CENTER (DTIC) OR OTHER SECONDARY DISTRIBUTION CENTER		X
H. REQUIRE A COMSEC ACCOUNT		X
I. HAVE TEMPEST REQUIREMENTS		X
J. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS		X
K. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE		X
L. OTHER (SPECIFY)		

12. PUBLIC RELEASE. Any information *(classified or unclassified)* pertaining to this contract shall not be released for public dissemination except as provided by the Industrial Security Manual unless it has been approved for public release by appropriate U.S. Government authority. Proposed public releases shall be submitted for approval prior to release

[ ] Direct [X] Through *(Specify)*

"ATTN: C. TOM WEIH, M/S 126
NASA LANGLEY RESEARCH CENTER
HAMPTON, VA 23681-2199"

To the Office of Public Affairs, National Aeronautics and Space Administration, Washington, DC 20546, for review.
*In the case of non-DoD User Agencies, requests for disclosure shall be submitted to that agency.

13. **SECURITY GUIDANCE.** The security classification guidance needed for this classified effort is identified below. If any difficulty is encountered in applying this guidance or if any other contributing factor indicates a need for changes in this guidance, the contractor is authorized and encouraged to provide recommended changes; to challenge the guidance or the classification assigned to any information or material furnished or generated under this contract; and to submit any questions for interpretation of this guidance to the official identified below. Pending final decision, the information involved shall be handled and protected at the highest level of classification assigned or recommended. *(Fill in as appropriate for the classified effort. Attach, or forward under separate correspondence, any documents/guides/extracts referenced herein. Add additional pages as needed to provide complete guidance.)*

INDIVIDUAL TASK ORDERS WILL CONTAIN INSTRUCTIONS FOR POTENTIAL FUTURE CLASSIFIED TASKS.

WORK ON THIS CONTRACT WILL BE PERFORMED AT GOVERNMENT FACILITIES WHERE CLASSIFICATION GUIDANCE WILL BE PROVIDED AS NECESSARY.

THE CONTRACTOR MAY BE PROVIDING SUPPORT PERSONNEL FOR ONGOING RESEARCH AND DEVELOPMENT PROGRAMS THAT WILL REQUIRE INDIVIDUALS, DESIGNATED BY GOVERNMENT, TO HAVE A TOP SECRET SECURITY CLEARANCE.

THE CONTRACTOR WILL PROVIDE COPIES OF ANY DD254s ISSUED TO SUBCONTRACTORS WORKING UNDER THIS CONTRACT TO THE ADDRESS SHOWN BELOW IN BOX 16, NO LATER THAN 30 DAYS FROM ISSUANCE.

14. ADDITIONAL SECURITY REQUIREMENTS. Requirements, in addition to ISM requirements, are established for this contract. *(If Yes, identify the pertinent contractual clauses in the contract document itself, or provide an appropriate statement which identifies the additional requirements. Provide a copy of the requirements to the cognizant security office. Use Item 13 if additional space is needed.)* [ ] YES [X] NO

HOWEVER, SPECIAL ACCESS PROJECTS (SAP) TASK MAY BE ISSUED THAT REQUIRE ADDITIONAL SECURITY PROTECTION.

15. INSPECTIONS. Elements of this contract are outside the inspection responsibility of the cognizant security office. *(If Yes, explain and identify specific areas or elements carved out and the activity responsible for inspections. Use Item 13 if additional space is needed.)* [ ] Yes [X] No

HOWEVER, ALL SPECIAL ACCESS PROJECTS, ELEMENTS AND AREAS ACCREDITED UNDER THIS CONTRACT WILL BE UNDER THE SECURITY COGNIZANCE OF THE ACTIVITY LISTED:

ATTN: SAM A. HARVEY, MAIL STOP 450
NASA LANGLEY RESEARCH CENTER
HAMPTON, VA 23681-2199

16. **CERTIFICATION AND SIGNATURE.** Security requirements stated herein are complete and adequate for safeguarding the classified information to be released or generated under this classified effort. All questions shall be referred to the official named below.

a. TYPED NAME OF CERTIFYING OFFICIAL	b. TITLE	c. TELEPHONE *(Include Area Code)*
SAM A. HARVEY	PROGRAM SECURITY TEAM LEADER	(757) 864-6507

d. ADDRESS *(Include Zip Code)*

ATTN: SAM A. HARVEY, MAIL STOP 450
NASA LANGLEY RESEARCH CENTER
HAMPTON, VA 23681-2199

e. SIGNATURE

17. REQUIRED DISTRIBUTION

[X]	A. CONTRACTOR
[ ]	B. SUBCONTRACTOR
[ ]	C. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR
[ ]	D. U.S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION
[X]	E. ADMINISTRATIVE CONTRACTING OFFICER
[X]	F. OTHERS AS NECESSARY

EXHIBIT B

CONTRACT DOCUMENTATION REQUIREMENTS

I. DOCUMENTATION PREPARATION/SUBMISSION INSTRUCTIONS

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

1. A narrative statement of work accomplished during the report period

2. A statement of current and potential problem areas and proposed corrective action

3. A discussion of work to be performed during the next report period

The monthly progress report shall be submitted within **15 days** after the end of each calendar monthly report period.

B. Monthly Financial Management Report

1. The Contractor shall submit a monthly financial management report as provided by the Section G, Clause 1852.242-73, 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 of Paragraphs 2a and 2c below.)

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

a. For each authorized Task Order.

b. Summary Report for the total contract.

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

d. Each 533M shall include a narrative explanation for variances exceeding **10 percent** between planned dollars and actual dollars for each reporting category (at the total contract level only).

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

a. Direct Productive Labor Dollars
b. Other Direct Labor Dollars
c. Overhead
d. G&A
e. Subcontract
f. Material
g. Travel

h. Computing
i. ODC
j. FCCOM
k. Total Estimated Cost
l. Fee
m. Total Estimated Cost and Fee

C. Quality System Documents (ISO 9001) - The Contractor shall submit the following ISO-compliant documents in accordance with H.9 not later than **nine months** from the effective date of the contract:

Quality System Manual

Quality System Procedures - these procedures shall address:

(1) contract and subcontract management, (2) customer requirement review and execution, (3) task management, including work order generation and processing, (4) document control, (5) handling of customer supplied product, (6) corrective and preventive action, (7) training of employees, and (8) design control including design of software and hardware.

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

E. Federal Contractor Veterans Employment Report--In compliance with Clause 52.222-37, Employment Reports on 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.

F. Evidence of Insurance--The Contractor shall submit evidence of the insurance coverage, required by the NASA Clause 1852.228-75 entitled "Minimum Insurance Coverage" (i.e., a Certificate of Insurance or other confirmation), to the Contracting Officer prior to performing under this contract. In the event the Government exercises its options to extend the term of the contract, the Contractor shall also present such evidence to the Contracting Officer prior to commencement of performance under the extension.

G. Quarterly Accident/Injury Report--The Contractor shall submit a Quarterly Accident/Injury Report within 10 operating days after the end of each quarter.

H. Security Plan for Unclassified Federal Computer Systems -- The Contractor shall submit the Security Plan for Unclassified Federal Computer Systems in accordance with NASA FAR Supplement Clause 1852.204-77 30 days after contract award.

I. Self Assessment Report -- The Contractor shall submit a Self Assessment Report in accordance with the instructions contained in the Award Fee Evaluation Plan (Exhibit E), including the cost analysis as defined in Part III.C of the plan. The self assessment shall not exceed five pages and shall be delivered to the Government within 25 calendar days from the end of each award fee evaluation period.

J. Safety and Health Plan -- The Contractor shall submit a Safety and Health Plan in accordance with NASA FAR Supplement Clause 1852.223-73, 30 days after contract award.

K. Electronic Task Order Spreadsheet -- The Contractor shall prepare an electronic task order spreadsheet by contract award and maintain it through contract completion. The spreadsheet shall include but not be limited to: (1) task order number, (2) task monitor, organization code, and mail stop,

(3) task order cost estimate, (4) task order fee, (5) cumulative actual cost per task order, (6) balance of cost and fee per task order, (7) the number of revisions/modifications per task order, (8) the total estimated cost and fee for issued task orders and (9) the total actual cumulative cost and fee. The spreadsheet shall be made available to the Contracting Officer and the Contracting Officer's Technical Representative upon request.

L. Virginia and Local Sales Taxes--In accordance with Section H.11, you are required to submit a copy of the letter sent to the Virginia Tax Commission and a copy of the subsequent response.

M. Year 2000 Compliance Documentation—In accordance with the clause in H.9 the Contractor shall provide for the review and approval of the Contracting Officer the documentation that demonstrates Year 2000 compliance. This documentation shall be provided with the deliverable hardware/software identified in this contract.

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 23681-2199

B. The following letter codes designate the recipients of reports and other documentation which are required to be delivered to Langley Research Center, unless otherwise specified, 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 147

F--LMS Project Officer, Mail Stop 438

G--Task Monitor

H--Security and Public Safety Office, Mail Stop 450

I--NASA Center for Aerospace Information (CASI)
Attn: Accessioning Department
Parkway Center
7121 Standard Drive
Hanover, MD 21076

J--Geoff Tennille, Communications and Computer Systems Branch, Mail Stop 124

For CASI, one copy must be reproducible; plus one 3.5 inch diskette. The diskette text should be MS-DOS or DOS TEXT files and labeled with contract number, content description, date prepared, and type of software used. Encapsulated Post Script level 1.2 is preferred, but WordPerfect 6.x or Microsoft Word 6.x or Adobe portable document format (PDF) or Standard Generalized Markup Language (SGML) or ASCII full-text are acceptable. All graphics must be included. Standard Form 298, Report Documentation Page, shall comply with ANSI Standard Z39-18, OMB Approval 0704-0188. Only Unclassified reports shall be submitted to the NASA Center for AeroSpace Information.

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:

DOCUMENT	LETTER CODE AND DISTRIBUTION
Monthly Technical Letter Progress Report	A-1, B-1
Monthly Financial Management Report	A-1, B-1, E-2
Safety and Health Plan	A-1, B-1, H-1
Federal Contractor Veterans Employment Report (VETS-100)	A-1
Quality System Documents	A-1, B-1, F-1
Final Reports	A-1, B-1, G-1, I-1
Evidence of Insurance	A-1
Quarterly Accident/Injury Report	A-1, B-1, H-1
Self Assessment Report	A-1, B-1
Security Plan for Unclassified Federal Computer Systems	A-1, J-1
Electronic Task Order Spreadsheet	A-1, B-1
Virginia and Local Sales Taxes Letter	A-1
Year 2000 Compliance Documentation	A-1, B-1
Patent Rights Report	C-1, D-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 C

94-2544 VA, NORFOLK 06/08/99
FOR OFFICIAL USE ONLY BY FEDERAL AGENCIES PARTICIPATING IN MOU WITH DOL

REGISTER OF WAGE DETERMINATION UNDER
THE SERVICE CONTRACT ACT
ADMINISTRATION
By direction of the Secretary of Labor

Division of Wage Determinations

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS

WAGE AND HOUR DIVISION
Washington, D.C. 20210

Wage Determination No.: 94-2544
Revision No.: 18
Date of Last Revision: 06/03/1999

State: North Carolina, Virginia

Areas: North Carolina COUNTIES OF Camden, Chowan, Currituck, Gates, Pasquotank, Perquimans
Virginia COUNTIES OF Gloucester, Isle of Wight, James City, Mathews,
Southampton, Surry, York, Chesapeake, Hampton, Newport News, Norfolk
Poquoson, Portsmouth, Suffolk, Virginia Beach, Williamsburg

** Fringe Benefits Required For All Occupations Included In
This Wage Determination Follow The Occupational Listing **

OCCUPATION CODE AND TITLE	MINIMUM HOURLY WAGE
Administrative Support and Clerical Occupations:	
01011 Accounting Clerk I	$ 7.76
01012 Accounting Clerk II	$ 9.80
01013 Accounting Clerk III	$ 12.19
01014 Accounting Clerk IV	$ 13.23
01030 Court Reporter	$ 12.43
01050 Dispatcher, Motor Vehicle	$ 10.61
01060 Document Preparation Clerk	$ 9.38
01070 Messenger (Courier)	$ 7.62
01090 Duplicating Machine Operator	$ 9.38
01110 Film/Tape Librarian	$ 9.28
01115 General Clerk I	$ 7.51
01116 General Clerk II	$ 9.24
01117 General Clerk III	$ 11.49
01118 General Clerk IV	$ 12.84
01120 Housing Referral Assistant	$ 13.25
01131 Key Entry Operator I	$ 8.82
01132 Key Entry Operator II	$ 11.10
01191 Order Clerk I	$ 8.50
01192 Order Clerk II	$ 11.12
01261 Personnel Assistant (Employment) I	$ 9.49
01262 Personnel Assistant (Employment) II	$ 10.97
01263 Personnel Assistant (Employment) III	$ 11.58
01264 Personnel Assistant (Employment) IV	$ 13.27
01270 Production Control Clerk	$ 13.78
01290 Rental Clerk	$ 9.97
01300 Scheduler, Maintenance	$ 9.97
01311 Secretary I	$ 9.97

01312 Secretary II	$ 11.60
01313 Secretary III	$ 13.25
01314 Secretary IV	$ 15.53
01315 Secretary V	$ 16.30
01320 Service Order Dispatcher	$ 10.67
01341 Stenographer I	$ 10.10
01342 Stenographer II	$ 11.34
01400 Supply Technician	$ 13.23
01420 Survey Worker (Interviewer)	$ 10.80
01460 Switchboard Operator-Receptionist	$ 8.08
01510 Test Examiner	$ 11.60
01520 Test Proctor	$ 11.60
01531 Travel Clerk I	$ 7.57
01532 Travel Clerk II	$ 8.08
01533 Travel Clerk III	$ 8.62
01611 Word Processor I	$ 10.00
01612 Word Processor II	$ 11.27
01613 Word Processor III	$ 12.62

Automatic Data Processing Occupations:

03010 Computer Data Librarian	$ 8.26
03041 Computer Operator I	$ 9.25
03042 Computer Operator II	$ 10.70
03043 Computer Operator III	$ 13.25
03044 Computer Operator IV	$ 15.34
03045 Computer Operator V	$ 16.31
03071 Computer Programmer I 1/	$ 15.39
03072 Computer Programmer II 1/	$ 17.42
03073 Computer Programmer III 1/	$ 20.76
03074 Computer Programmer IV 1/	$ 24.75
03101 Computer Systems Analyst I 1/	$ 19.38
03102 Computer Systems Analyst II 1/	$ 22.32
03103 Computer Systems Analyst III 1/	$ 27.48
03160 Peripheral Equipment Operator	$ 9.50

Automotive Service Occupations:

05005 Automobile Body Repairer, Fiberglass	$ 16.22
05010 Automotive Glass Installer	$ 14.79
05040 Automotive Worker	$ 14.79
05070 Electrician, Automotive	$ 15.49
05100 Mobile Equipment Servicer	$ 13.37
05130 Motor Equipment Metal Mechanic	$ 16.22
05160 Motor Equipment Metal Worker	$ 14.79
05190 Motor Vehicle Mechanic	$ 16.22
05220 Motor Vehicle Mechanic Helper	$ 12.61
05250 Motor Vehicle Upholstery Worker	$ 14.07
05280 Motor Vehicle Wrecker	$ 14.79
05310 Painter, Automotive	$ 15.49
05340 Radiator Repair Specialist	$ 14.07
05370 Tire Repairer	$ 13.37
05400 Transmission Repair Specialist	$ 16.22

Food Preparation and Service Occupations:

07010 Baker	$ 8.68
07041 Cook I	$ 7.85
07042 Cook II	$ 8.68
07070 Dishwasher	$ 6.96
07100 Food Service Worker (Cafeteria Worker)	$ 6.30
07130 Meat Cutter	$ 9.85
07250 Waiter/Waitress	$ 6.58

Furniture Maintenance and Repair Occupations:

09010 Electrostatic Spray Painter	$ 17.81
09040 Furniture Handler	$ 12.89
09070 Furniture Refinisher	$ 15.49
09100 Furniture Refinisher Helper	$ 12.61
09110 Furniture Repairer, Minor	$ 14.07
09130 Upholsterer	$ 15.49

General Service and Support Occupations:

11030 Cleaner, Vehicles	$ 6.96
11060 Elevator Operator	$ 6.05
11090 Gardener	$ 8.91
11121 Housekeeping Aide I	$ 6.70
11122 Housekeeping Aide II	$ 7.46
11150 Janitor	$ 6.96
11210 Laborer, Grounds Maintenance	$ 7.57
11240 Maid or Houseman	$ 6.24
11270 Pest Controller	$ 8.25
11300 Refuse Collector	$ 6.96
11330 Tractor Operator	$ 8.49
11360 Window Cleaner	$ 7.57

Health Occupations:

12020 Dental Assistant	$ 10.26
12040 Emergency Medical Technician/Paramedic Ambulance Driver	$ 10.26
12071 Licensed Practical Nurse I	$ 9.40
12072 Licensed Practical Nurse II	$ 10.55
12073 Licensed Practical Nurse III	$ 11.80
12100 Medical Assistant	$ 9.46
12130 Medical Laboratory Technician	$ 10.11
12160 Medical Record Clerk	$ 10.13
12190 Medical Record Technician	$ 12.71
12221 Nursing Assistant I	$ 6.66
12222 Nursing Assistant II	$ 7.49
12223 Nursing Assistant III	$ 8.17
12224 Nursing Assistant IV	$ 9.17
12250 Pharmacy Technician	$ 11.44
12280 Phlebotomist	$ 10.55
12311 Registered Nurse I	$ 14.62
12312 Registered Nurse II	$ 17.88
12313 Registered Nurse II, Specialist	$ 17.88
12314 Registered Nurse III	$ 21.64
12315 Registered Nurse III, Anesthetist	$ 21.64

12316 Registered Nurse IV	$ 25.93

Information and Arts Occupations:

13002 Audiovisual Librarian	$ 13.75
13011 Exhibits Specialist I	$ 15.02
13012 Exhibits Specialist II	$ 18.25
13013 Exhibits Specialist III	$ 20.27
13041 Illustrator I	$ 15.02
13042 Illustrator II	$ 18.25
13043 Illustrator III	$ 20.27
13047 Librarian	$ 15.81
13050 Library Technician	$ 11.02
13071 Photographer I	$ 11.33
13072 Photographer II	$ 15.02
13073 Photographer III	$ 18.25
13074 Photographer IV	$ 20.27
13075 Photographer V	$ 24.53

Laundry, Drycleaning, Pressing and Related Occups:

15010 Assembler	$ 5.83
15030 Counter Attendant	$ 5.83
15040 Dry Cleaner	$ 7.18
15070 Finisher, Flatwork, Machine	$ 5.83
15090 Presser, Hand	$ 5.83
15100 Presser, Machine, Drycleaning	$ 5.83
15130 Presser, Machine, Shirts	$ 5.83
15160 Presser, Machine, Wearing Apparel, Laundry	$ 5.83
15190 Sewing Machine Operator	$ 7.66
15220 Tailor	$ 8.13
15250 Washer, Machine	$ 6.28

Machine Tool Operation and Repair Occupations:

19010 Machine-Tool Operator (Toolroom)	$ 15.49
19040 Tool and Die Maker	$ 17.84

Materials Handling and Packing Occupations:

21010 Fuel Distribution System Operator	$ 13.37
21020 Material Coordinator	$ 14.02
21030 Material Expediter	$ 14.02
21040 Material Handling Laborer	$ 8.56
21050 Order Filler	$ 8.46
21071 Forklift Operator	$ 10.36
21080 Production Line Worker (Food Processing)	$ 10.54
21100 Shipping/Receiving Clerk	$ 10.18
21130 Shipping Packer	$ 10.18
21140 Store Worker I	$ 8.40
21150 Stock Clerk (Shelf Stocker; Store Worker II)	$ 10.51
21210 Tools and Parts Attendant	$ 12.54
21400 Warehouse Specialist	$ 12.07

Mechanics and Maintenance and Repair Occupations:

23010 Aircraft Mechanic	$ 17.75
23040 Aircraft Mechanic Helper	$ 13.80
23050 Aircraft Quality Control Inspector	$ 18.53
23060 Aircraft Servicer	$ 15.39
23070 Aircraft Worker	$ 16.18
23100 Appliance Mechanic	$ 15.49
23120 Bicycle Repairer	$ 13.37
23125 Cable Splicer	$ 16.22
23130 Carpenter, Maintenance	$ 15.49
23140 Carpet Layer	$ 17.01
23160 Electrician, Maintenance	$ 16.22
23181 Electronics Technician, Maintenance I	$ 14.09
23182 Electronics Technician, Maintenance II	$ 14.41
23183 Electronics Technician, Maintenance III	$ 15.44
23260 Fabric Worker	$ 14.07
23290 Fire Alarm System Mechanic	$ 16.22
23310 Fire Extinguisher Repairer	$ 13.37
23340 Fuel Distribution System Mechanic	$ 16.22
23370 General Maintenance Worker	$ 14.79
23400 Heating, Refrigeration and Air-Conditioning Mechanic	$ 16.22
23430 Heavy Equipment Mechanic	$ 16.22
23440 Heavy Equipment Operator	$ 16.22
23460 Instrument Mechanic	$ 16.22
23470 Laborer	$ 9.68
23500 Locksmith	$ 15.49
23530 Machinery Maintenance Mechanic	$ 16.18
23550 Machinist, Maintenance	$ 16.22
23580 Maintenance Trades Helper	$ 12.61
23640 Millwright	$ 18.65
23700 Office Appliance Repairer	$ 15.49
23740 Painter, Aircraft	$ 15.49
23760 Painter, Maintenance	$ 15.49
23790 Pipefitter, Maintenance	$ 16.22
23800 Plumber, Maintenance	$ 15.49
23820 Pneudraulic Systems Mechanic	$ 16.22
23850 Rigger	$ 16.22
23870 Scale Mechanic	$ 14.79
23890 Sheet-Metal Worker, Maintenance	$ 16.22
23910 Small Engine Mechanic	$ 14.79
23930 Telecommunications Mechanic I	$ 16.22
23931 Telecommunications Mechanic II	$ 19.48
23950 Telephone Lineman	$ 16.22
23960 Welder, Combination, Maintenance	$ 16.22
23965 Well Driller	$ 16.22
23970 Woodcraft Worker	$ 16.22
23980 Woodworker	$ 13.37

Personal Needs Occupations:

24570 Child Care Attendant	$ 6.34
24580 Child Care Center Clerk	$ 9.10
24600 Chore Aide	$ 5.92
24630 Homemaker	$ 9.58

Plant and System Operation Occupations:

25010 Boiler Tender	$ 16.22
25040 Sewage Plant Operator	$ 17.21
25070 Stationary Engineer	$ 16.22
25190 Ventilation Equipment Tender	$ 12.61
25210 Water Treatment Plant Operator	$ 17.21

Protective Service Occupations:

27004 Alarm Monitor	$ 8.29
27006 Corrections Officer	$ 11.91
27010 Court Security Officer	$ 11.91
27040 Detention Officer	$ 11.91
27070 Firefighter	$ 13.19
27101 Guard I	$ 6.93
27102 Guard II	$ 8.29
27130 Police Officer	$ 14.25

Stevedoring/Longshoremen Occupational Services:

28010 Blocker and Bracer	$ 14.18
28020 Hatch Tender	$ 12.33
28030 Line Handler	$ 12.33
28040 Stevedore I	$ 13.57
28050 Stevedore II	$ 14.90

Technical Occupations:

29010 Air Traffic Control Specialist, Center 2/	$ 24.90
29011 Air Traffic Control Specialist, Station 2/	$ 17.17
29012 Air Traffic Control Specialist, Terminal 2/	$ 18.91
29023 Archeological Technician I	$ 11.43
29024 Archeological Technician II	$ 12.85
29025 Archeological Technician III	$ 15.87
29030 Cartographic Technician	$ 15.87
29035 Computer Based Training (CBT) Specialist/Instructor	$ 20.26
29040 Civil Engineering Technician	$ 18.25
29061 Drafter I	$ 10.07
29062 Drafter II	$ 11.33
29063 Drafter III	$ 14.24
29064 Drafter IV	$ 17.30
29081 Engineering Technician I	$ 12.06
29082 Engineering Technician II	$ 12.90
29083 Engineering Technician III	$ 15.89
29084 Engineering Technician IV	$ 19.25
29085 Engineering Technician V	$ 22.48
29086 Engineering Technician VI	$ 27.78
29090 Environmental Technician	$ 15.87
29100 Flight Simulator/Instructor (Pilot)	$ 23.32
29150 Graphic Artist	$ 17.62
29160 Instructor	$ 17.51
29210 Laboratory Technician	$ 11.86
29240 Mathematical Technician	$ 15.87

29361 Paralegal/Legal Assistant I	$ 10.80
29362 Paralegal/Legal Assistant II	$ 13.12
29363 Paralegal/Legal Assistant III	$ 16.05
29364 Paralegal/Legal Assistant IV	$ 19.42
29390 Photooptics Technician	$ 18.25
29480 Technical Writer	$ 15.02
29491 Unexploded Ordnance Technician I	$ 15.82
29492 Unexploded Ordnance Technician II	$ 19.15
29493 Unexploded Ordnance Technician III	$ 22.95
29494 Unexploded Safety Escort	$ 15.82
29495 Unexploded Sweep Personnel	$ 15.82
29620 Weather Observer, Senior 3/	$ 14.72
29621 Weather Observer, Combined Upper Air & Surface Programs 3/	$ 13.60
29622 Weather Observer, Upper Air 3/	$ 13.60

Transportation/Mobile Equipment Operation Occups:

31030 Bus Driver	$ 9.42
31260 Parking and Lot Attendant	$ 6.98
31290 Shuttle Bus Driver	$ 9.01
31300 Taxi Driver	$ 8.50
31361 Truckdriver, Light Truck	$ 9.01
31362 Truckdriver, Medium Truck	$ 9.42
31363 Truckdriver, Heavy Truck	$ 11.18
31364 Truckdriver, Tractor-Trailer	$ 11.18

Miscellaneous Occupations:

99020 Animal Caretaker	$ 7.00
99030 Cashier	$ 6.23
99041 Carnival Equipment Operator	$ 8.49
99042 Carnival Equipment Repairer	$ 8.91
99043 Carnival Worker	$ 6.05
99050 Desk Clerk	$ 7.00
99095 Embalmer	$ 17.63
99300 Lifeguard	$ 6.16
99310 Mortician	$ 17.63
99350 Park Attendant (Aide)	$ 7.74
99400 Photofinishing Worker (Photo Lab Tech., Darkroom Tech)	$ 6.91
99500 Recreation Specialist	$ 13.04
99510 Recycling Worker	$ 8.52
99610 Sales Clerk	$ 6.16
99620 School Crossing Guard (Crosswalk Attendant)	$ 6.96
99630 Sports Official	$ 6.16
99658 Survey Party Chief (Chief of Party)	$ 9.49
99659 Surveying Technician (Instr. Person/Surveyor Asst./Instr.)	$ 8.63
99660 Surveying Aide	$ 5.92
99690 Swimming Pool Operator	$ 8.68
99720 Vending Machine Attendant	$ 8.52
99730 Vending Machine Repairer	$ 9.98
99740 Vending Machine Repairer Helper	$ 8.52

** Fringe Benefits Required For All Occupations Included In This Wage Determination **

HEALTH & WELFARE: Life, accident, and health insurance plans, sick leave, pension plans, civic and personal leave, severance pay, and savings and thrift plans. Minimum employer contributions costing an average of $2.56 per hour computed on the basis of all hours worked by service employees employed on the contract.

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 8 years; 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with predecessor contractors in the performance of similar work at the same Federal facility. (See 29 CFR 4.173)

HOLIDAYS: Minimum of ten paid holidays per year: New Year's Day, Martin Luther King JR's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4.174)

1/ Does not apply to employees employed in a bona fide executive, administrative, or professional capacity as defined and delineated in 29 CFR 541. (See 29 CFR 4.156)

2/ APPLICABLE TO AIR TRAFFIC CONTROLLERS ONLY - NIGHT DIFFERENTIAL: An employee is entitled to pay for all work performed between the hours of 6:00 P.M. and 6:00 A.M. at the rate of basic pay plus a night pay differential amounting to 10 percent of the rate of basic pay.

3/ WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employee (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday preium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

** UNIFORM ALLOWANCE **

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $4.25 per week (or $.85 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

** NOTES APPLYING TO THIS WAGE DETERMINATION **

Source of Occupational Titles and Descriptions:

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations," Fourth Edition, January 1993, as amended by the Second Supplement, dated August 1995, unless otherwise indicated. This publication may be obtained from the Superintendent of Documents, at 202-783-3238, or

by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Copies of specific job descriptions may also be obtained from the appropriate contracting officer.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE
{Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

1) When preparing the bid, the contractor identifies the need for a conformed occupation) and computes a proposed rate).

2) After contract award, the contractor prepares a written report listing in order proposed classification title), a Federal grade equivalency (FGE) for each proposed classification), job description), and rationale for proposed wage rate), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.

3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).

4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.

5) The contracting officer transmits the Wage and Hour decision to the contractor.

6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

EXHIBIT D

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

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

NPG 2200.2A NASA Procedures and Guidelines
(http//www.sti.nasa.gov/neghome3.htm)
DoD 5220.22-M, National Industrial Security Program Operating Manual (NISPOM), January 1995

FORMAT AND ORGANIZATION: The format and organization of a Contractor Report should be consistent and follow the practices recommended in the NASA Procedures and Guidelines. For questions concerning format, contact Langley Research Information Management at (757) 864-2518. A Report Documentation Page (RDP) (Standard Form 298) shall be included as the last page in the report. The RDP is available electronically at *(http//www.sti.nasa.gov/neghome3.htm)*. A sample of this form is attached.

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

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

SECURITY: Security markings, when necessary, shall be consistent with DD Form 254, the directive issued by the Security Classification Officer, and shall conform to requirements established in the DoD NISPOM. For questions concerning security classification, contact LaRC Security Classification Officer at (757) 864-3420.

APPROVAL COPIES.

1. Upon completion of a report, the Contractor shall submit five (5) approval copies to the Contracting Officer's Technical Representative (COTR) for review and approval by NASA. These copies may be reproduced on both sides of sheet where feasible and assembled by an economical means by the Contractor. **Notify the Langley Contracting Officer when the approval copies are submitted.**

2. The Contractor will be notified of acceptance of the approval copy of the report by the COTR within thirty (30) days. Approval will be contingent upon changes required by NASA.

FINAL (REVISED) COPIES:

1. Upon receipt of acceptance from the Langley COTR, the Contractor shall prepare an original manuscript incorporating the changes required by NASA.

2. The Contractor shall submit the original manuscript and up to five (5) duplicate copies to the Langley COTR within thirty (30) days after receipt of acceptance. Electronic PostScript files for the cover and report (including figures and tables), and Report Documentation Page source file shall also be submitted to the Langley COTR, if available. **Notify the Langley Contracting Officer when the final revised report is submitted.**

Contact the Langley COTR for information on transmitting the electronic files by file transfer protocol (FTP). The electronic files may be saved on a 3.5-inch, high density, double-sided disk(s) and submitted with the final manuscript. The disk(s) and files should be labeled to properly identify the report.

ORIGINAL MANUSCRIPT: The original manuscript of a Contractor Report shall consist of a single-sided, unbound, laser printed copy of the text with all tables, figures, artwork, graphs, photos and captions included on the pages. Photographs shall be either scanned electronic images or unscreened glossy prints that have been cut and mounted on the pages. The manuscript shall be single spaced with consecutive page numbers on all pages, excluding the cover. The manuscript shall be printed on 8-1/2 by 11 paper with a maximum page image are of 7-1/8 by 9-3/16 inches

EXHIBIT E

AWARD FEE EVALUATION PLAN

NASA CONTRACT NAS1-_____

SYSTEMS ANALYSIS AND MISSION SUPPORT (SAMS) CONTRACT

CONTENTS

PART I - AWARD FEE EVALUATION BOARD CHARTER AND MEMBERS

A. General

The Award Fee Evaluation Board (AFEB) derives its authority from Langley Research Center memorandum signed by the Center Director dated _____.

The Charter of the AFEB is to maintain an organization and establish a method of operation which will ensure acquisition of data necessary to permit a valid semi-annual assessment of the Contractor's performance in the following three (3) areas: Technical Performance, Management and Safety, and Cost. The AFEB is to develop an evaluation plan, evaluate the Contractor's overall performance concerning the contract work, discuss such evaluations with the Contractor, and submit to the Fee Determination Official (FDO) a fee recommendation for each evaluation period with applicable results and findings.

B. Award Fee Evaluation Board

The AFEB Membership consists of those individuals appointed in the memorandum dated _____ signed by the Center Director. Changes in the AFEB Chairman, other Voting members, secretary, and coordinators will be approved by the FDO. Changes in monitors will be approved by the AFEB Chairperson. Any changes in the FDO will be made by the Center Director. The Contractor will be provided with copies of any such changes.

PART II - EVALUATION PROCESS

The participants in the award fee process and the process itself are described below:

A. AFEB Meeting - The meetings will be scheduled so that the evaluation process can be completed and the Determination and Findings presented to the FDO for action within 45 days following completion of the evaluation period. At least four voting AFEB members shall be present in order to conduct the meeting.

B. AFEB Chairperson - A NASA Langley employee designated to lead the award fee evaluation process. The Chair is responsible for leading the preparation of the award fee plan and for all meetings of the Board. The Chair shall schedule all meetings so that the evaluation process can be completed within the time allotted. If the AFEB Chair is unavailable to schedule and conduct the meeting, the FDO shall appoint one of the other voting members to serve as Chairperson for the award fee evaluation period.

C. AFEB Secretary - A NASA Langley employee responsible for the documentation of the activities of the Board. The Secretary is responsible for the minutes of meetings or other documentation that summarizes the information reviewed, including any additional information provided by the contractor, and the consideration given to all such information. Announcements, documentation and files are important to support the meetings and recommendations of the Board.

D. Monitor - A NASA Langley employee designated to observe, assess, and report the performance by the Contractor on a specified Task Order. Monitors are identified on the Task Orders. The monitor will complete a semi-annual Task Order performance report using the standards/metrics specified in the Task Orders as the basis for evaluation. The monitor will assign an overall adjective and numerical rating to Task Orders, with consideration given to quality and timeliness, using the definitions set forth in Exhibit B. In addition, the technical monitor shall indicate any major strengths or weaknesses that need to be brought to the AFEB's attention.

E. Contractor - The Contractor shall submit a 5-page (or less) self-assessment report including the 2 cost analysis reports (not included in the 5-page limitation) to the technical and business coordinators within 25 days from the end of each 6-month evaluation period. The report shall

contain any pertinent information that is considered critical to the evaluation process. This report will be used by the technical and business coordinators in assessing the Contractor's performance for the period. Furthermore, the Contractor will have the opportunity to provide a 30 minute presentation to the AFEB on the day of the meeting following each evaluation period.

F. Coordinators - NASA Langley employees designated to receive, validate, and assess the monitors' reports and present performance information to the AFEB. Coordinators have been appointed as set forth in Part I above by the Center Director.

There are two coordinators for this contract. The technical coordinator is responsible for documenting and presenting the evaluation of the Contractor's Technical Performance, and Management and Safety. The business coordinator will address Cost and support the technical coordinator in addressing Management and Safety.

The technical coordinator will review and consolidate the monitors' semi-annual evaluation reports and input their adjective and numerical ratings into a database, which will average the total numerical score. The technical coordinator will make an independent assessment of the performance rendered by the Contractor and may modify monitor input if circumstances warrant doing so. The technical coordinator will present the final score along with any significant strengths/weaknesses and input from the Contractor to the AFEB. The technical coordinator will then perform and document strengths and weaknesses of the Contractor's performance under Management and Safety (with input from the business coordinator), and assign an adjective rating.

The business coordinator will evaluate Cost and assign an adjective rating as described in Exhibit B. The business coordinator will also review the cost analysis as defined below and present the findings to the AFEB. Under Management and Safety, the business coordinator will take into account the effectiveness of the Contractor in recognizing and resolving business problems. The business coordinator will document strong and weak points in reference to business management along with the results of the Cost analysis and report the findings to the AFEB.

The coordinators' reports will be forwarded to the AFEB at least 2 days prior to the scheduled AFEB meeting. The coordinators will present an oral briefing of their evaluation results to the AFEB at the evaluation meetings.

G. AFEB - A team of NASA Langley employees who perform a review of all aspects of Contractor performance and recommend an appropriate performance rating and fee amount to the FDO. All changes to the voting member appointments will be approved by the FDO.

The AFEB will develop an evaluation plan for evaluating the Contractor's performance and will periodically review the plan to determine if it is still current and whether any changes are necessary. The AFEB will convene on a schedule that ensures completion of the total award fee process within 60 days according to Exhibit A.

The AFEB will receive written and oral evaluation reports from the coordinators. Using the approved evaluation plan and giving due consideration to all known performance data, the Board will assess the Contractor's overall performance. The Board will develop an adjective rating as set forth in Exhibit B for each of the evaluation factors: Technical Performance, Management and Safety and Cost. The adjective ratings will then be converted to a numerical rating.

The Board will then weigh each of the factor numerical ratings by the Factor weights as follows:

Technical Performance	50%
Management and Safety	25%
Cost	25%

The Board will then sum the weighted scores to derive a recommended award fee rating. The Board will review the rating to ensure that it reflects the consensus regarding the Contractor's total overall performance for the period. The Board will then derive a recommended fee amount.

The AFEB will provide the Contractor with a briefing of the evaluation findings. The Board will consider any further performance data offered by the Contractor, and if necessary, will revise evaluation findings, adjective ratings, and recommend a fee rating to reflect this additional information. The Board will document its evaluation results and recommend a fee amount for transmittal to the FDO. If the FDO's final determination of award fee is different from that recommended by the Board, the FDO will document the rationale for the Board's file. The business coordinator will prepare a "Notice of Award Fee" for transmittal by the Contracting Officer to the Contractor.

The Office of Procurement will maintain the official award fee evaluation files containing: the AFEB Establishment Memorandum and revisions, evaluation plan and revisions, minutes of meetings, coordinators' and monitors' reports, contractor submittals, general correspondence, memoranda to the FDO, determinations of award fee, notices of award fee, and other documents of significance.

H. Fee Determination Official - A member of Langley Research Center's management designated to review the semi-annual recommendation of the AFEB in order to make a final determination of award fee.

PART III - EVALUATION FACTORS AND CONSIDERATIONS

The following is a description of evaluation factors to be considered. The Contractor's performance levels will be assessed for each factor using the adjective ratings described in Exhibit B. The evaluation process will encompass actual performance and the conditions under which it was achieved. For example, performance will be considered in light of the priorities and workload existing during the evaluation period, taking into consideration factors beyond the Contractor's control, which either enhanced or detracted from performance.

A. Technical Performance - The effectiveness of the Contractor's overall technical performance will be evaluated. Consideration will be given to quality and timeliness. The primary basis of the evaluation will be the specific standards/metrics listed in individual Task Orders.

B. Management and Safety - This factor is evaluated at the contract level, and carries a weight of 25% of the total available fee for each Award Fee Period. The effectiveness of the Contractor's overall technical and business management will be evaluated. Consideration will be given to:

- Management effectiveness
- Response to emergency and other urgent tasks
- Recognition, resolution and prevention of problems
- Quality and timeliness of required documentation
- Communications/cooperation/working relationships with Government
- Effective staffing of the contract (including training)
- Soundness of management systems (e.g., purchasing and subcontracting, time and attendance, control of Government property, work scheduling and control)
- Adequacy of equipment and other tools to perform the contract
- Trends or recurring problems

The Contractor's safety and health program and record will also be evaluated as part of this Factor. Areas to be considered are the company's emphasis on safety, the effectiveness of the safety organization, safety training, actions taken to prevent accidents or safety violations, recognition of safety hazards/violations and remedial actions, and the timeliness and adequacy of required safety

documentation. An analysis will be made of lost-time and other accidents, the number, types, duration of lost time, and reasons for the accidents. An assessment will be made as to whether accidents represent isolated instances or are symptomatic of a contractor safety program deficiency.

The technical and business coordinators will consider any other actions that significantly contribute to or detract from effective management.

C. Cost - The effectiveness of the Contractor's management of cost will be evaluated. The cost evaluation will be based on the Task Orders performed during the 6-month evaluation period and an overall assessment of the Contractor's indirect rates. The Contractor will be required to submit a task plan that basically describes the technical approach and a proposed cost for performing the work prior to issuing each Task Order. The proposed cost of each Task Order will be based on a schedule of rates (both direct and indirect) that will be contained in the Contract Schedule, Section G, G.13, Schedule of Rates for Task Orders. There will be two Task Order cost analyses applicable to the award fee process

Definitions:

A. Task Order Planned Cost = The final negotiated cost of the individual Task Order applicable to the 6-month evaluation period

B. Task Order Actual Cost = The final cumulative cost incurred in performing the Task Order for the 6-month evaluation period taken directly from the NASA Financial Management Report (533)

C. Total Planned Cost = The sum of the planned cost for all Task Orders performed during the 6-month evaluation period

D. Total Actual Cost = The sum of the actual cost for all Task Orders performed during the 6-month evaluation period

Cost Analysis No.1:

The Task Order Actual Cost will be compared to the Task Order Planned Cost for each Task Order performed during the 6-month evaluation period. The numerical score under Cost Analysis 1 will be based on the percentage of tasks that fall at or below 105% of the Task Order Planned Cost.

Cost Analysis No. 2:

The Total Planned Cost for all Task Orders performed during the 6-month evaluation period will be compared to the Total Actual Costs for the same Task Orders.

Cost Analysis Report – Appendix 1

The Contractor shall prepare and submit both Cost Analysis calculations using the definitions above and include them as Appendix 1 to the self-assessment report. The analysis shall include:

1. A listing of all Task Orders performed during the 6-month evaluation period.
2. The Task Order Planned Cost of all Task Orders performed during the 6-month evaluation period.
3. The Task Order Actual Cost of all Task Orders performed during the 6-month evaluation period.
4. The percentage of Task Orders where the Task Order Actual Cost falls at or below 105% of the Task Order Planned Cost.
5. The Total Planned Cost of all Task Orders performed during the 6-month evaluation period.
6. The Total Actual Cost of all Task Orders performed during the 6-month evaluation period.

The Government reserves the right to adjust both analysis listed above to correct errors in the Contractors calculations or to factor in other circumstances that occurred during the six-month evaluation period.

PART IV - CHANGES TO EVALUATION PLAN

Throughout the period of performance, both parties to the contract are encouraged to submit suggestions for improving management emphasis, motivating higher performance levels, or simplifying the evaluation process. Both the Government and the contractor should work to eliminate any unnecessary contractual, organizational, or conceptual barriers that impede a partnering relationship.

Any changes to this award fee evaluation plan will be made by the AFEB and will be approved by the AFEB Chairman. Changes will be made available to the Contractor, through the Contracting Officer, prior to the first evaluation period in which the change will be effective.

EXHIBIT A

ACTIONS AND SCHEDULES FOR AWARD FEE DETERMINATIONS

The following is a summary of the principal actions involved in determining the award fee for the evaluation periods.

Action	Schedule (Calendar Days)
1. AFEB Chair and members appointed	Prior to contract award.
2. AFEB considers reports and other requested performance information.	On-going
3. Technical Monitors submit evaluation reports	NLT 14 days after end of each award fee period.
4. Contractor submits self assessment report.	NLT 25 days after end of each award fee period.
5. AFEB meets and summarizes preliminary findings.	NLT 39 days after end of each award fee period.
6. AFEB meets with the Contractor to discuss preliminary findings.	NLT 39 days after end of each award fee period.
7. AFEB establishes findings and recommendations for the Award Fee Evaluation Report (AFER).	NLT 39 days after end of each award fee period.
8. AFEB chair submits AFER to the FDO.	NLT 40 days after end of each award fee period.
9. FDO considers the AFER and discusses it with AFEB, as appropriate.	NLT 44 days after end of each award fee period.
10. FDO signs award fee determination letter. Office of Procurement sends notification of Award Fee to the Contractor.	NLT 45 days after end of each award fee period.
11. Payment made to Contractor.	NLT 60 days after end of period.

EXHIBIT B- DRAFT AWARD FEE PLAN

SCORING GUIDELINES

Each evaluation factor is scored based on these guidelines. The determining percentage for each factor is weighted to derive a recommended award fee rating.

Adjective	Description	Percentage of Award Fee
Excellent	Of exceptional merit; exemplary performance in a timely, efficient, and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance.	91-100
Very Good	Very effective performance, fully responsive to contract requirements accomplished in a timely, efficient, and economical manner for the most part. Only minor deficiencies.	81-90
Good	Effective performance; fully responsive to contract requirements; reportable deficiencies, but with little identifiable effect on overall performance.	71-80
Satisfactory	Meets or slightly exceeds minimum acceptable standards; adequate results. Reportable deficiencies with identifiable, but not substantial, effects on overall performance.	61-70
Poor/ Unsatisfactory	Does not meet minimum acceptable standards in one or more areas; remedial action required in one or more areas; deficiencies in one or more areas which adversely affect overall performance	60 and Below*

Any factor receiving a grade of "Poor/Unsatisfactory" (less than 61) will be assigned zero performance points for purposes of calculating the award fee amount. The Contractor will not be paid any award fee when the total award fee score is "Poor/Unsatisfactory" (less than 61).

EXHIBIT F

Safety and Health Plan

(NOTE: To be submitted only by the offeror selected for contract award.)

EXHIBIT G

Direct Labor Classification Descriptions

Technical Professional

Exp. Levels	Recommended Education and Years of Work Experience
Category I	Entry Level Eng., BS Degree in Eng.
Category II	Masters Degree with <3 yrs. Exp., Bachelors Degree with <5 yrs. Exp.
Category III	Ph.D. with <3 yrs., Masters Degree with 3-6 yrs. Exp., Bachelors Degree with 5-10 yrs. Exp.
Category IV	Ph.D. with ≥3 years exp., Masters Degree with >6 yrs. Exp., Bachelors Deg. with >10 yrs. Exp.
Category V	Ph.D. with ≥10 years exp., Masters Degree with >15 yrs.

Support Personnel

Exp. Levels	Recommended Education and Years of Work Experience
Category I	High School
Category II	BA Degree or 10 Yrs. Minimum Exp.
Category III	MA, or BA with 5+ Yrs., or 15+ Yrs. Exp.
Category IV	MA with 5+ Years Exp., BA with 10+ Yrs., or 20+ Yrs. Exp.

Technicians

Exp. Levels	Recommended Education and Years of Work Experience
Category I	High School
Category II	AA Degree, or Minimum 5 Yrs. Exp.
Category III	AA Degree with 5+ Yrs. Exp., or Minimum 10 Yrs. Exp.
Category IV	AA Degree with 10+ Yrs. Exp., or Minimum 20 Yrs. Exp.

Technical Professional:

Computer Scientist - Resolves a variety of difficult operation problems (e.g., making unusual equipment connections and rarely used equipment and channel configurations to direct processing through or around problems in equipment, circuits, or channels or reviewing test run requirements and developing unusual system configurations that will allow test programs to process without interfering with ongoing job requirements). May spend considerable time providing technical assistance to lower level operators and assisting programmers, systems analysts, and subject matter specialists in resolving problems.

Programmer – Develops and implements computer codes to accomplish research objectives. Modifies existing codes to meet new requirements. Troubleshoots problems as needed.

Systems Analyst – Monitors and maintains computer system resources. Troubleshoots and corrects hardware problems.

Operation Aircraft Pilot – Provides pilot capabilities for aircraft or simulated aircraft. Assists with project activities that benefit from pilot expertise.

Engineer – Develops engineering specifications based on research requirements; develops designs, performs supporting analyses, documents findings.

Project Manager – Responsible for overall project implementation. Tracks progress and resources (cost & manpower). Documents and reports progress and deficiencies. Recommends and implements strategies for solving problems.

Engineer Supervisor – Provides line management for engineering and technical personnel. Ensures appropriate utilization of resources and reports individual performance.

Research Scientist – Senior-level engineering or research personnel providing direct research support. Duties include basic research, design and development of tests, supervision and performance of tests as well as professional level documentation such as journal articles.

Senior Scientist – Nationally or worldwide recognized scientific expert in a specific discipline. Performs highly specialized, one-of-a-kind research tasks in direct support of mission requirements. Capable of extending state-of-the-art to a significant degree.

Support Personnel:

Administrative Associate - Performs specialized administrative support tasks of non-routine and non-repetitive nature to assist technical, and/or administrative personnel. Performs professional level tasks requiring independent judgment, initiative and tact.

Project Planner – Coordinates and organizes projects, develops Work Breakdown Structures and logic diagrams. Supports Project Manager in information management for the project.

Programmer – Performs administrative data entry tasks such as schedule and resource database updates. Collates and collects data for Projects

Documentarian – Serves as focal point for development of Project Libraries; including information management and tracking. Develops document trees and procedures governing project activities.

Scheduler/Cost Analyst – Develops and maintains project level budgets and schedules. Tracks and updates project progress through use of computer-based COTS software.

Air Traffic Controller – Supports research by providing air traffic control expertise based on experience with air traffic flow and management requirements, and relevant National Aerospace System Components.

Technician:

Electronic Technician - Applies technical knowledge of electronics principles in determining equipment malfunctions, and applies skill in restoring equipment operations.

Test Assistant - conducts routine tests or experiments; records and evaluates data and reports findings. At higher levels, may plan approach and conduct various experiments; may arrange for fabrication of support equipment; may determine test procedures and design of special test equipment.

Designer – Performs layouts, drafting and "light" independent design in support of engineering personnel. At higher levels, may specify equipment and perform supporting calculations.

Mechanical Technician - Applies methods outlined by others to limited segments of research and development projects; assembles experimental or prototype models and hardware to meet engineering requirements.

Test Conductor - Conducts tests or experiments requiring selection and adaptation or modification of test equipment and test procedures; sets up and may operate equipment; records data, measures and records problems that require resolution. Analyzes data and prepares test reports. At higher levels, may advise equipment users on redesign or solve unique operational defficiencies.

Engineering Associate - Applies conventional engineering practices to develop, prepare, or recommend schematics, designs, specifications, electrical drawings and parts lists. Examples of designs include: detailed circuit diagrams; hardware fittings or test equipment involving a variety of mechanisms; conventional piping systems; and building site layouts.

SECTION K - REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS

K.1 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (FAR 52.203-11) (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief, that on or after December 23, 1989, -

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

K.2 TAXPAYER IDENTIFICATION (FAR 52.204-3) (OCT 1998)

(a) Definitions.

"Common parent," as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

"Taxpayer Identification Number (TIN)," as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) Taxpayer Identification Number (TIN).

( ) TIN: _____.

( ) TIN has been applied for.

( ) TIN is not required because:

( ) Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

( ) Offeror is an agency or instrumentality of a foreign government;

( ) Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

( ) Sole proprietorship;

( ) Partnership;

( ) Corporate entity (not tax-exempt);

( ) Corporate entity (tax-exempt);

( ) Government entity (Federal, State, or local);

( ) Foreign government;

( ) International organization per 26 CFR 1.6049-4;

( ) Other _____.

(f) Common parent.

( ) Offeror is not owned or controlled by a common parent as defined in Paragraph (a) of this provision.

( ) Name and TIN of common parent:

Name _____

TIN _____

K.3 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (FAR 52.209-5) (MAR 1996)

(a) (1) The Offeror certifies, to the best of its knowledge and belief, that -

(i) The Offeror and/or any of its Principals -

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers;

or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

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

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

K.4 SMALL BUSINESS PROGRAM REPRESENTATIONS (FAR 52.219-1 (MAY 1999)--ALTERNATE I (NOV 1999) AND ALTERNATE II (NOV 1999)

(a)(1) The standard industrial classification (SIC) code for this acquisition is **8731**.

(2) The small business size standard is **1,500 employees**.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ☐ is, ☐ is not a small business concern.

(2) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, for general statistical purposes, that it ☐ is, ☐ is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents as part of its offer that it ☐ is, ☐ is not a women-owned small business concern.

(4) [Complete only if offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It ☐ is, ☐ is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office of ownership, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR Part 126; and

(ii) It ☐ is, ☐ is not a joint venture that complies with the requirements of 13 CFR Part 126, and the representation in paragraph (b)(4)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. [The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: _____.] Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(5) [Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.] The offeror shall check the category in which its ownership falls:

_____ Black American.

_____ Hispanic American.

_____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

_____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

_____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

_____ Individual/concern, other than one of the preceding.

(c) Definitions.

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

"Women-owned small business concern," as used in this provision, means a small business concern--

(1) Which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice. (1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

K.6 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FAR 52.222-22) (FEB 1999)

The offeror represents that--

(a) It ☐ has, ☐ has not participated in a previous contract or subcontract subject the Equal Opportunity clause of this solicitation;

(b) It ☐ has, ☐ has not filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

K.7 AFFIRMATIVE ACTION COMPLIANCE (FAR 52.222-25) (APR 1984)

The offeror represents that (a) it ( ) has developed and has on file, ( ) has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2), or (b) it ( ) has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

K.8 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (FAR 52.223-13) (OCT 1996)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that—

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in sectin313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

☐ (i) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

☐ (ii) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);

☐ (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

☐ (iv) The facility does not fall within Standard Industrial Classification Code (SIC) designations 20 through 39 as set forth in section 19.102 of the Federal Acquisition Regulation; or

☐ (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

K.9 USE OF GOVERNMENT-OWNED PROPERTY (NASA 1852.245-79) (JUL 1997)

(a) The offeror ( ) does, ( ) does not intend to use in performance of any contract awarded as a result of this solicitation existing Government-owned facilities (real property or plant equipment), special test equipment, or special tooling (including any property offered by this solicitation). The offeror shall identify any offered property not intended to be used. If the offeror does intend to use any of the above items, the offeror must furnish the following information required by Federal Acquisition Regulation (FAR) 45.205(b), and NASA FAR Supplement (NFS) 1845.102-71:

(1) Identification and quantity of each item. Include the item's acquisition cost if it is not property offered by this solicitation.

(2) For property not offered by this solicitation, identification of the Government contract under which the property is accountable and written permission for its use from the cognizant Contracting Officer.

(3) Amount of rent calculated in accordance with FAR 45.403 and the clause at FAR 52.245-9, Use and Charges, unless the property has been offered on a rent-free basis by this solicitation.

(4) The dates during which the property will be available for use, and if it is to be used in more than one contract, the amounts of respective uses in sufficient detail to support proration of the rent. This information is not required for property offered by this solicitation.

(b) The offeror ( ) does, ( ) does not request additional Government provided property for use in performing any contract awarded as a result of this solicitation. If the offeror requests additional Government-provided property, the offeror must furnish --

(1) Identification of the property, quantity, and estimated acquisition cost of each item; and

(2) The offeror's written statement of its inability to obtain facilities as prescribed by FAR 45.302-1(a)(4).

(c) If the offeror intends to use any Government property (paragraph (a) or (b) of this provision), the offer must also furnish the following:

(1) The date of the last Government review of the offeror's property control and accounting system, actions taken to correct any deficiencies found, and the name and telephone number of the cognizant property administrator.

(2) A statement that the offeror has reviewed, understands, and can comply with all property management and accounting procedures in the solicitation, FAR Subpart 45.5, and NFS Subparts 1845.5 and 1845.71.

(3) A statement indicating whether or not the costs associated with paragraph (2) of this provision, including plant clearance and/or plant reconversion costs, are included in its cost proposal.

K.10 COMPLIANCE WITH VETERANS EMPLOYMENT REPORTING REQUIREMENTS (FEB 1999)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 37 U.S.C. 4212(d) (i.e., the VETS-100 report required by Federal Acquisition Regulation clause 52.222-37, Employment Reports on Disabled Veterans and Veterans of the Vietnam Era), it has submitted the most recent report required by 37 U.S.C. 4212(d).

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

L.1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FAR 52.252-1) (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the CO will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

http://www.arnet.gov/far/

http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

CLAUSE NUMBER	TITLE AND DATE
52.204-6	Data Universal Numbering System (DUNS) Number (JUN 1999)
52.215-16	Facilities Capital Cost of Money (OCT 1997)
52.222-24	Preaward On-Site Equal Opportunity Compliance Evaluation (FEB 1999)
52.237-1	Site Visit (APR 1984)

NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	TITLE AND DATE
1852.233-70	Protests to NASA (MAR 1997)

L.2 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (FAR 52.211-14) (SEP 1990)

Any contract awarded as a result of this solicitation will be ( ) DX rated order; (**X**) DO rated order certified for national defense use under the Defense Priorities and Allocations System (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

L.3 INSTRUCTIONS TO OFFERORS--COMPETITIVE ACQUISITION (FAR 52.215-1) (FEB 2000)

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

"Discussions" are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

"In writing" or "written" means any worded or numbered expression which can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

"Proposal modification" is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

"Proposal revision" is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

"Time," if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

(b) Amendments to solicitations. If this solicitation is amended, all terms and conditions that are not amended remain unchanged. Offerors shall acknowledge receipt of any amendment to this solicitation by the date and time specified in the amendment(s).

(c) Submission, modification, revision, and withdrawal of proposals.

(1) Unless other methods (e.g., electronic commerce or facsimile) are permitted in the solicitation, proposals and modifications to proposals shall be submitted in paper media in sealed envelopes or packages (i) addressed to the office specified in the solicitation, and (ii) showing the time and date specified for receipt, the solicitation number, and the name and address of the offeror. Offerors using commercial carriers should ensure that the proposal is marked on the outermost wrapper with the information in paragraphs (c)(1)(i) and (c)(1)(ii) of this provision.

(2) The first page of the proposal must show--

(i) The solicitation number;

(ii) The name, address, and telephone and facsimile numbers of the offeror (and electronic address if available);

(iii) A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item;

(iv) Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and

(v) Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(3) Submission, modification, revision, and withdrawal of proposals.

(i) Offerors are responsible for submitting proposals, and any modifications or revisions, so as to reach the Government office designated in the solicitation by the time specified in the solicitation. If no time is specified in the solicitation, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that proposal or revision is due.

(ii) (A) Any proposal, modification, or revision received at the Government office designated in the solicitation after the exact time specified for receipt of offers is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late offer would not unduly delay the acquisition; and--

(1) If it was transmitted through an electronic commerce method authorized by the solicitation, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(2) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of offers and was under the Government's control prior to the time set for receipt of offers; or

(3) It is the only proposal received.

(B) However, a late modification of an otherwise successful proposal that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(iii) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(iv) If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the office designated for receipt of proposals by the exact time specified in the solicitation, and urgent Government requirements preclude amendment of the solicitation, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(v) Proposals may be withdrawn by written notice received at any time before award. Oral proposals in response to oral solicitations may be withdrawn orally. If the solicitation authorizes facsimile proposals, proposals may be withdrawn via facsimile received at any time before award, subject to the conditions specified in the provision at 52.215-5, Facsimile Proposals. Proposals may be withdrawn in person by an offeror or an authorized representative, if the identity of the person requesting withdrawal is established and the person signs a receipt for the proposal before award.

(4) Unless otherwise specified in the solicitation, the offeror may propose to provide any item or combination of items.

(5) Offerors shall submit proposals in response to this solicitation in English, unless otherwise permitted by the solicitation, and in U.S. dollars, unless the provision at FAR 52.225-17, Evaluation of Foreign Currency Offers, is included in the solicitation.

(6) Offerors may submit modifications to their proposals at any time before the solicitation closing date and time, and may submit modifications in response to an amendment, or to correct a mistake at any time before award.

(7) Offerors may submit revised proposals only if requested or allowed by the Contracting Officer.

(8) Proposals may be withdrawn at any time before award. Withdrawals are effective upon receipt of notice by the Contracting Officer.

(d) Offer expiration date. Proposals in response to this solicitation will be valid for the number of days specified on the solicitation cover sheet (unless a different period is proposed by the offeror).

(e) Restriction on disclosure and use of data. Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall--

(1) Mark the title page with the following legend:

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of--or in connection with--the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]; and

(2) Mark each sheet of data it wishes to restrict with the following legend:

Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.

(f) Contract award.

(1) The Government intends to award a contract or contracts resulting from this solicitation to the responsible offeror(s) whose proposal(s) represents the best value after evaluation in accordance with the factors and subfactors in the solicitation.

(2) The Government may reject any or all proposals if such action is in the Government's interest.

(3) The Government may waive informalities and minor irregularities in proposals received.

(4) The Government intends to evaluate proposals and award a contract without discussions with offerors (except clarifications as described in FAR 15.306(a)). Therefore, the offeror's initial proposal should contain the offeror's best terms from a cost or price and technical standpoint. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. If the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

(5) The Government reserves the right to make an award on any item for a quantity less than the quantity offered, at the unit cost or prices offered, unless the offeror specifies otherwise in the proposal.

(6) The Government reserves the right to make multiple awards if, after considering the additional administrative costs, it is in the Government's best interest to do so.

(7) Exchanges with offerors after receipt of a proposal do not constitute a rejection or counteroffer by the Government.

(8) The Government may determine that a proposal is unacceptable if the prices proposed are materially unbalanced between line items or subline items. Unbalanced pricing exists when, despite an acceptable total evaluated price, the price of one or more contract line items is significantly overstated or understated as indicated by the application of cost or price analysis techniques. A proposal may be rejected if the Contracting Officer determines that the lack of balance poses an unacceptable risk to the Government.

(9) If a cost realism analysis is performed, cost realism may be considered by the source selection authority in evaluating performance or schedule risk.

(10) A written award or acceptance of proposal mailed or otherwise furnished to the successful offeror within the time specified in the proposal shall result in a binding contract without further action by either party.

(11) The Government may disclose the following information in postaward debriefings to other offerors:

(i) The overall evaluated cost or price and technical rating of the successful offeror;

(ii) The overall ranking of all offerors, when any ranking was developed by the agency during source selection;

(iii) A summary of the rationale for award; and

(iv) For acquisitions of commercial items, the make and model of the item to be delivered by the successful offeror.

L.4 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (FAR 52.215-20) (OCT 1997) -- ALTERNATE IV (OCT 1997)

(a) Submission of cost or pricing data is not required.

(b) Provide information described below: See Section L, Pricing Instruction under L.13.F.1, Factor 2, Cost/Price.

L.5 TYPE OF CONTRACT (FAR 52.216-1) (APR 1984)

The Government contemplates award of a cost-plus-award-fee, Indefinite Delivery, Indefinite Quantity contract resulting from this solicitation.

L.6 EVALUATION OF COMPENSATION FOR PROFESSIONAL EMPLOYEES (FAR 52.222-46) (FEB 1993)

(a) Recompetition of service contracts may in some cases result in lowering the compensation (salaries and fringe benefits) paid or furnished professional employees. This lowering can be detrimental in obtaining the quality of professional services needed for adequate contract performance. It is therefore in the Government's best interest that professional employees, as defined in 29 CFR 541, be properly and fairly compensated. As a part of their proposals, offerors will submit a total compensation plan setting forth salaries and fringe benefits proposed for the professional employees who will work under the contract. The Government will evaluate the plan to assure that it reflects a sound management approach and understanding of the contract requirements. This evaluation will include an assessment of the offeror's ability to provide uninterrupted high-quality work. The professional compensation proposed will be considered in terms of its impact upon recruiting and retention, its realism, and its consistency with a total plan for compensation. Supporting information will include data, such as recognized national and regional compensation surveys and studies of professional, public and private organizations, used in establishing the total compensation structure.

(b) The compensation levels proposed should reflect a clear understanding of work to be performed and should indicate the capability of the proposed compensation structure to obtain and keep suitably qualified personnel to meet mission objectives. The salary rates or ranges must take into account differences in skills, the complexity of various disciplines, and professional job difficulty. Additionally, proposals envisioning compensation levels lower than those of predecessor Contractors for the same work will be evaluated on the basis of maintaining program continuity, uninterrupted high-quality work, and availability of required competent professional service employees. Offerors are cautioned that lowered compensation for essentially the same professional work may indicate lack of sound management judgment and lack of understanding of the requirement.

(c) The Government is concerned with the quality and stability of the work force to be employed on this contract. Professional compensation that is unrealistically low or not in reasonable relationship to the various job categories, since it may impair the Contractor's ability to attract and retain competent

professional service employees, may be viewed as evidence of failure to comprehend the complexity of the contract requirements.
(d) Failure to comply with these provisions may constitute sufficient cause to justify rejection of a proposal.

L.7 SERVICE OF PROTEST (FAR 52.233-2) (AUG 1996)

(a) Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from Head, Service and Construction Contracting Branch.
(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

L.8 IDENTIFICATION OF UNCOMPENSATED OVERTIME (FAR 52.237-10) (OCT 1997)

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

"Uncompensated overtime" means the hours worked without additional compensation in excess of an average of 40 hours per week by direct charge employees who are exempt from the Fair Labor Standards Act. Compensated personal absences such as holidays, vacations, and sick leave shall be included in the normal work week for purposes of computing uncompensated overtime hours.

"Uncompensated overtime rate" is the rate that results from multiplying the hourly rate for a 40-hour work week by 40, and then dividing by the proposed hours per week. For example, 45 hours proposed on a 40-hour work week basis at $20 per hour would be converted to an uncompensated overtime rate of $17.78 per hour ($20.00 x 40 divided by 45 = $17.78).

(b) For any proposed hours against which an uncompensated overtime rate is applied, the offeror shall identify in its proposal the hours in excess of an average of 40 hours per week, by labor category at the same level of detail as compensated hours, and the uncompensated overtime rate per hour, whether at the prime or subcontract level. This includes uncompensated overtime hours that are in indirect cost pools for personnel whose regular hours are normally charged direct.

(c) The offeror's accounting practices used to estimate uncompensated overtime must be consistent with its cost accounting practices used to accumulate and report uncompensated overtime hours.

(d) Proposals that include unrealistically low labor rates, or that do not otherwise demonstrate cost realism, will be considered in a risk assessment and will be evaluated for award in accordance with that assessment.

(e) The offeror shall include a copy of its policy addressing uncompensated overtime with its proposal.

L.9 DETERMINATION OF COMPENSATION REASONABLENESS (NASA 1852.231-71) (MAR 1994)

(a) The proposal shall include a total compensation plan. This plan shall address all proposed labor categories, including those personnel subject to union agreements, the Service Contract Act, and those exempt from both of the above. The total compensation plan shall include the salaries/wages, fringe benefits and leave programs proposed for each of these categories of labor. The plan also shall include a discussion of the consistency of the plan among the categories of labor being proposed. Differences between benefits offered professional and non-professional employees shall be highlighted. The requirements of this plan may be combined with that required by the clause at FAR 52.222-46, "Evaluation of Compensation for Professional Employees."

(b) The offeror shall provide written support to demonstrate that its proposed compensation is reasonable.

(c) The offeror shall include the rationale for any conformance procedures used or those Service Contract Act employees proposed that do not fall within the scope of any classification listed in the applicable wage determination.

(d) The offeror shall require all service subcontractors (1) with proposed cost reimbursement or non-competitive fixed-price type subcontracts having a total potential value in excess of $500,000 and (2) the cumulative value of all their service subcontracts under the proposed prime contract in excess of 10 percent of the prime contract's total potential value, provide as part of their proposals the information identified in (a) through (c) of this provision.

L.10 PREPROPOSAL/PRE-BID CONFERENCE (NASA 1852.215-77) (DEC 1988)

(a) A preproposal/pre-bid conference will be held as indicated below:

Date: **April 25, 2000**
Time: 9:00 a.m.
Location: Pearl Young Theater
Other information:
For planning your itinerary, the following is a tentative agenda for the conference:

9:00 a.m.	Introduction
9:30 a.m.	Competency Information
10:30 a.m.	Break
11:00 a.m.	Questions/Answers
11:45 a.m.	Lunch
1:00 p.m.	Bus Tour of Facilities

Attendance will be limited to a maximum of three representatives per offeror. The briefing will be unclassified. If you desire to attend the conference, you should so indicate by completing and faxing the form contained under Attachment 5 to the appropriate individual specified below. Your notification of attendance must include information on whether the individuals are U.S. Citizens, possess a green card, or are resident aliens for access to the Center. After the briefing, advise this Center if you intend to submit a proposal.

In order that as many questions as possible may be answered at the NASA presentations during the briefing, written questions should be submitted to C. Tom Weih no later than **April 20, 2000**. A limited time may be available for answering questions submitted on the day of the conference. However, as there is no assurance that adequate time to answer such questions will remain, submission of questions prior to the conference, by the date specified above, will assure their being fully answered. All questions submitted to NASA in writing prior to the Final RFP release date, including those discussed at the Preproposal Conference, will answered and included as an attachment to the Final RFP.

(b) Attendance at the preproposal/pre-bid conference is recommended; however, attendance is neither required nor a prerequisite for proposal/bid submission and will not be considered in the evaluation.

L.11 COMMUNICATIONS REGARDING THIS SOLICITATION (LaRC 52.204-95) (OCT 1993)

Any communications in reference to this solicitation shall cite the solicitation number and be directed to the following Government representative:

Name: C. Tom Weih
Phone: (757) 864-3878 (COLLECT CALLS NOT ACCEPTED)

Facsimile: 757-864-7709
Address: National Aeronautics and Space Administration
Langley Research Center
Attn: C. Tom Weih, Mail Code 126
Hampton, VA 23681-2199

Any written communications must include the mail code on the envelope or on the telex.

L.12 BIDDERS LIBRARY

An Electronic Bidders Library has been established for this procurement. The Library is accessible by following the instructions below:

1. Log onto the Internet and access: http://foia.larc.nasa.gov.
2. Click on "Electronic Reading Room"
3. Click on "Search Contracts"
4. To search information related to Aerospace Research and Technology Services (ARTS), type in "96014" and hit the search button.
5. To search information related to Systems Analysis and Engineering Research Support (SAERS) Services, type in "96013" and hit the search button.

L.13 PROPOSAL PREPARATION AND SUBMISSION--SPECIAL INSTRUCTIONS

A. General Information

1. It is noted that the Statement of Work generally describes the technical mission. For proposal purposes only, Attachment 3 sets forth representative tasks which provide insight as to the subject matter which may be included in typical task(s) to be issued by the Government. It is not intended that the sum of the projected effort for the typical tasks equates to the specified RFP maximum.

2. As part of the Consolidated Contracting Initiative (CCI), the resultant contract will be set-up to accommodate the issuance of Task Orders by other NASA Centers. All of the instructions including the evaluation criteria of this solicitation have been established as if all the work will be performed at NASA Langley Research Center.

3. Number of Proposals, Time and Place of Submission--The offeror shall submit the original and nine copies of each volume of his proposal to the address shown in Block 8 of the Standard Form (SF) 33 (face page of this solicitation), or if hand carried, to the depository listed in Block 9 of the SF 33. Offers must be received at the place indicated on or before the date and hour shown in Block 9 of the SF 33.

4. Proposal Clarity--Your proposal should be specific, complete, and concise. The offeror is urged to examine this solicitation in its entirety and to assure that his proposal contains all the necessary information, provides all required documentation and is complete in all respects since evaluation of the proposal will be based on the actual material presented and not on the basis of what is implied. You should ensure that your cost proposal is consistent with your technical proposal in all respects since the cost proposal may be used as an aid to determine the offeror's understanding of the technical requirements. Discrepancies may be viewed as a lack of understanding.

B. Proposal Format and Content

1. Proposals must be submitted in three (3) volumes: Volume I, Technical Proposal, Volume II, Business Proposal, and Volume III, Past Performance. No cost information shall be presented in the Technical Proposal except the cost estimates for the Representative Task Orders.

2. Proposal Page Limitation (NASA 1852.215-81 FEB 1998)

(a) The following page limitations are established for each portion of the proposal submitted in response to this solicitation.

Proposal Section	Page Limitation
TECHNICAL PROPOSAL – VOLUME I	75 pages

(b) A page is defined as one side of a sheet, 8 1/2" x 11", with at least one inch margins on all sides, using not smaller than 12 point type. Foldouts count as an equivalent number of 8 1/2" x 11" pages. The metric standard format most closely approximating the described standard 8 1/2" x 11" size may also be used. In addition, 8-point type is acceptable for graphics and tables provided that it is legible.

(c) Title pages and tables of contents are excluded from the page counts specified in paragraph (a) of this provision. In addition, the Cost section of your proposal is not page limited. However, this section is to be strictly limited to cost and price information. Information that can be construed as belonging in one of the other sections of the proposal will be so construed and counted against that section's page limitation.

(d) If final revisions are requested, separate page limitations will be specified in the Government's request for that submission.

(e) Pages submitted in excess of the limitations specified in this provision will not be evaluated by the Government and will be returned to the offeror.

C. The 75 Page Limitation stated above is exclusive of the cover page, table of contents, title pages, list of figures; dividers, quality system procedures, quality planning procedures, letter from the offeror committing to an ISO-9001 compliance schedule and quality system manual (see L.13.E.1b(1)). The Business Proposal (Volume II) is not page limited. However, the Business Proposal is to be strictly limited to responses to Factor 2 and the executed Section K, Representations, Certifications, and Other Statements of Offerors. The Past Performance Proposal (Volume III) is not page limited. However, it is strictly limited to responses to Factor 3.

D. Contractor Facilities

All performance of Langley work under the resultant contract will be performed on-site at NASA Langley Research Center. NASA LaRC will provide all connections to "LaRC-NET." The Contractor is responsible for providing compatible ethernet cards and software to connect to the LaRC-provided lines. Additional information regarding "LaRC-NET" can be found at:
http://larcpubs.larc.nasa.gov/LaRCfacilities/fac10.html

E. TECHNICAL PROPOSAL - VOLUME I

1. Factor 1 - Mission Suitability

The offeror's Technical Proposal is the basis for the evaluation of the Mission Suitability Factor 1. The proposal should address the offeror's understanding of the technical requirements of the Statement of Work and the proposed approach to meeting those requirements.

The Mission Suitability Subfactors to be considered and described are set forth below:

a. **Subfactor 1 - Understanding the Requirements**

The offeror should demonstrate an understanding of the SAMS requirements, the role of the SAMS contractor, and an understanding of the NASA LaRC research environment. The offeror should correlate his expertise and that of significant subcontractors or teaming partners to each of the broad functional areas in the Statement of Work.

The offeror should address his technical approach for the representative task orders identified in Attachment 3. We understand that all representative task descriptions may not contain sufficient information to actually perform the task. The purpose of the representative tasks is to present an opportunity for the offeror to demonstrate his task planning capabilities. The offeror's responses to the representative task orders should demonstrate a thorough approach to task planning and execution, including a Work Breakdown Structure (WBS). The offeror should identify potential problems, risks, and alternatives. The offeror should elaborate on areas where choices might be made that would represent large differences in risk, time, equipment use, etc. The offeror should identify any interface issues (people, equipment, information transfer, etc.) that need to be considered. The offeror should describe the applicable technical documentation to be generated under each representative task order.

For each representative task order, a schedule for completion of work, including task start times, key milestone dates, intermediate deliverables and resources should be included to reflect the technical approach proposed. The offeror's proposal should address prime and subcontractor staffing for each representative task order, including labor categories and labor hours. The offeror shall propose a cost estimate (labor, equipment, facilities and materials) for the prime and subcontract effort, including appropriate indirect costs (overhead and G&A), for each representative task order. The offeror shall include the anticipated monthly spending profile for each representative task order.

The offeror is reminded that the representative tasks are typical examples only. To enhance the offeror's understanding of the breadth and depth of the overall requirement, a list of existing and completed tasks orders on the present ART and SAERS contracts is available in the Bidder's Library.

b. **Subfactor 2 - Management and Staffing**

The offeror should describe a smooth, effective, and efficient phase-in plan. The plan should include a schedule with milestones identified for phase-in activities and a narrative explaining accomplishment of these milestones; an identification of the personnel involved in the phase-in and description of the responsibilities of each; a plan for staffing the effort; for obtaining the necessary equipment and materials, including ADP equipment and software; etc. For purposes of this phase-in plan, assume contract award by November 1, 2000, with a contract effective date of January 1, 2001.

The offeror should describe its approach for managing the total contract and the individual task orders. In particular, the offeror should describe its approach for managing the wide range of services covered by the Statement of Work and for insuring consistently good performance to all customers. The offeror should describe its proposed electronic system for issuing, modifying, managing and tracking task orders from initiation to completion. The offeror should explain the impact of any proposed subcontracting on the time, effort, cost, or paperwork required to estimate, plan, perform, or manage task orders.

The offeror should describe the capabilities and depth of its organization (including significant subcontractors or team members) for efficiently and effectively performing the contract effort. The offeror should describe the organizational structure of the contract, lines of authority,

authority/responsibilities of the personnel heading the organizational elements and other key personnel. The offeror should describe local management authority. The role of any significant subcontractors or team members in the organization should be clearly shown and explained. The interfaces within its organization, with its subcontractors or team members, with its corporate organization, and with the Government should be described.

The offeror should describe any corporate resources that are readily available to be utilized to perform the contract. The offeror should describe its ability to provide specialized personnel and recognized experts to meet the requirements of the Statement of Work.

The offeror should describe its approach for handling urgent, short-turn-around-time task orders that require immediate ramp-up of capabilities which are beyond the regular on-site staff. The offeror should describe its ability to adapt to changing requirements, priorities and workload and funding fluctuations without adversely affecting the work.

The offeror should describe its approach for prevention, early detection, and correction of cost, technical, and schedule problems (task and contract level). The offeror should describe its plan for communicating with the Government regarding problems and associated corrective actions. The offeror's proposal should demonstrate an understanding of the major risks associated with the performance of the contract and proposed risk mitigation actions.

The attraction and retention of personnel at NASA LaRC is both challenging and important. The offeror shall describe a competitive methodology to effectively attract, retain and motivate a high quality workforce. The offeror's shall submit a total compensation plan as required by FAR 52.222-46 and NFS 1852.231-71 for both the prime and subcontractors. The offeror should ensure that all the information required by these clauses is included in the plan. If applicable, describe your policies and procedures relative to uncompensated overtime (see L.8) and the historical basis for any uncompensated overtime proposed.

The offeror shall submit the following information to demonstrate the effectiveness of its quality system:

(1) Offerors that are ISO 9001 compliant (as defined in H.9)at the date the proposals are due shall provide a copy of their quality system manual. Such offerors shall also provide their quality system procedures that address: (a) contract and subcontract management, (b) customer requirement review and execution, (c) task management, including work order generation and processing, (d) document control, (e) handling of customer supplied product, (f) corrective and preventive action, (g) training of employees, and (h) design control including design of software and hardware. Offerors that are not ISO compliant are not required to submit a quality system manual or quality system procedures. However, those offerors that submit these documents demonstrating an effective quality system have the potential to be given the most favorable treatment possible under this evaluation element.

(2) All Offerors: All offerors shall submit a quality planning procedure as described in Section 4.2 of ANSI/ISO/ASQC Q9001-1994, *Quality Systems Model for Quality Assurance in Production, Installation, and Servicing.* This quality planning procedure shall describe how the offeror will develop quality system documentation or modify existing quality system documentation to control work activities specific to this contract.

(3) Offerors Which are Not Yet ISO Compliant: Offerors which are not ISO compliant at the date the proposals are due should submit a letter from an appropriate company official expressing its commitment to become compliant within nine months of the contract effective date, in accordance with H.9.

c. **Subfactor 3 - Cost Realism**

Cost realism is the degree to which all costs for the total contract reflect the proposed approach to achieving the technical objectives. Paragraph F.1 of Section L.13 requires the offeror to submit a cost proposal for the overall contract. This cost proposal will be the primary source for determining realistic costs as discussed in the criteria in Section M.3, Paragraph C. A separate discussion concerning cost realism is not required.

F. BUSINESS PROPOSAL - VOLUME II

1. Factor 2 -- Cost/Price

Under requirements of the Federal Acquisition Regulation (FAR), the Contracting Officer is responsible for determining reasonableness of prices. It is expected that adequate price competition will be obtained under this solicitation and that a determination of price reasonableness will be made in accordance with FAR 15.403-3. However, to establish cost realism, and the extent to which prices reflect performance addressed in the Technical Proposal, each offeror is required to submit cost or pricing information with its proposal pursuant to FAR 52.215-20, Alternate IV.

a. The offeror shall fully comply with the requirements set forth in FAR 15.408, Table 15-2, I. General Instructions A, E, G and II. Cost. Include in your cost proposal sufficient detail to support and explain all costs proposed, giving figures and narrative explanation. Since an award may be made without further discussion, this data must be submitted with your proposal.

b. The cost proposal should be prepared in a manner consistent with your current accounting system. Provide a statement verifying that you have an approved Accounting System, including the approval date and the name of the reviewing office. List any other systems, such as estimating, purchasing, compensation, and budgeting, that have been reviewed or are under review, showing the status, outstanding issues, approval date, and name of the reviewing office. Identify your cognizant Defense Contract Audit Agency (DCAA) Office. If applicable, provide a copy of your most current Forward Pricing Rate Agreement, a statement on the status of your Cost Accounting Standards Disclosure Statement, and the status of any unresolved Cost Accounting Standard issues.

c. Each subcontract expected to exceed a total of $500,000 shall also be supported in a similar manner consistent with the instructions in Paragraph 13. F. BUSINESS PROPOSAL – VOLUME II, 1. FACTOR 2 – Cost/Price. Prospective subcontractors may submit proprietary cost data directly to the Government no later than the date and time specified in the instructions for receipt of offers for this RFP.

d. Identify, explain, and reconcile any differences between Cost Form classifications and/or rates and those classifications and/or rates in your established accounting system. This establishes an audit trail from the Cost Forms to your books and records.

e. In accordance with FAR 45.302-1, it is policy of the Government that Contractors shall furnish all facilities required for performing Government contracts. "Facilities" include general purpose, off-the-shelf equipment, machine tools, test equipment, and vehicles. "Facilities" do not include material, special test equipment, special tooling or agency-peculiar property. In keeping with the policy set forth in FAR 45.302-1, the Contractor shall supply and maintain automatic data processing (ADP) equipment and software (such as CAD and analysis tools) for their use on this contract. Specialized software and test equipment required on a Task Order basis will either be directly charged to the Task Order or may be provided as Government furnished equipment. The offeror shall propose these costs pursuant to their established accounting system and clearly identify where these costs are considered in their proposal. In addition, unique and expensive software packages/seat licenses and UNIX workstations will NOT be provided as Government Furnished Property (GFP) for Contractors full-time use; however, access to them may be made available on an as-needed basis per task order. Although, the Government will not be providing "Facilities" under the resultant contract, the current list of

Government provided facilities for Contracts NAS1-96013 (SAERS) and NAS1-96014 (ARTS) is available for information purposes only. To obtain the current lists, go to the SAMS electronic Bidder's Library (see L.12) and search under NASA Contracts NAS1-96013 and NAS1-96014, Miscellaneous. In addition to the current lists of Government provided facilities, Attachment 7 to this RFP contains a listing of ARTS and SAERS employees by LaRC Building Number for additional information.

It is anticipated that the majority of the Standard (COTS-type) ADP equipment (i.e., computer seats) and associated software used directly by the Govrnment will be maintained/provided by the Center's ODIN contractor. The scheduled effective date of ODIN at LaRC is November 1, 2000. General information regarding ODIN can be found at: http://www-odin.larc.nasa.gov/. This website contains current catalog pricing information offered by ODIN vendors at other NASA Centers. It is noted that the NASA ODIN contract has a provision that allows a NASA Contractor to contract directly with them for ADP hardware and maintenance provided that and ODIN Government Contracting Officer has specifically authorized such an order in writing.

f. Computerized Cost Proposal Input Instructions

(1) The Government intends to use personal computers with Windows EXCEL 97 and LOTUS 1-2-3, Release 7, software to aid in the evaluation of the cost proposal. Offerors and subcontractors providing direct labor must submit cost information electronically or on 3-1/2 inch diskettes or CD's, two copies, in a format that can be opened with the specified software. Computerized cost data must be the identical data/information and format as that submitted in the paper proposal. In the event of any inconsistency between the diskettes and the paper proposal, the paper proposal will be considered the intended version. Any questions related to the computerized cost proposal shall be directed to Jeanne D. Covington at (757) 864-2545.

(2) Each diskette submitted must have an external label attached to it marked with the Offeror's Name and the solicitation number. It is preferred that all data/information be provided under one file; however, if the information you are submitting required more than one file, save all files under one directory. All linking must be within that directory. There shall be no external links. Your cost files/directory name must begin with at least the first four letters of your company's name or normal abbreviation, for example, Always Be Careful, Inc. cost file would be Always.wk4 or ABCI.xlw.

ALL ELECTRONIC COST SUBMISSIONS SHALL BE TRUE SELF-CALCULATING SPREADSHEETS. Any "absolute values" must be explained and supported.

g. Other Price and Cost Detail Instructions

The Government intends to include the labor rates and indirect rates proposed for each contract year in the resultant contract for pricing individual task orders. See Section G, G.13. Schedule of Rates for Task Orders.

The five-year proposed cost shall be based on the information set forth below. These estimates are for proposal and selection purposes only and are not a guarantee for any contract that may be awarded. Assume a contract start date of January 1, 2001.

All cost and pricing information should be submitted in a format consistent with the contract's five-year period of performance with details by contract year and contractor fiscal year and in total. The prime Contractor and any direct labor subcontractor(s) shall submit cost and pricing information to support their proposal(s).

Labor - For estimating purposes, assume 500,000 direct labor hours will be required annually apportioned by labor skill categories as set forth in the matrix below. If any of the positions are classified by your accounting system as other than direct labor, or if you propose to subcontract any of the positions, so indicate. Reconcile any differences between these categories and those in your established accounting system. The "direct labor hours" discussed in these instructions are

defined as those productive hours expended by Contractor and/or subcontractor personnel in performing direct functions required by to-be-issued Task Orders to perform the Statement of Work as defined in Section C. It does not include administrative or other labor classified as direct or indirect by your established accounting policy and procedures. The term does not include sick leave, vacation, holiday leave, military leave, or any type of administrative leave, but does include overtime hours and direct labor hours provided under subcontracts. Reference 52.237-10 if you propose uncompensated overtime. Your proposal must show the hours and costs by labor classification/category; however, the resultant contract will not reflect a specified level-of-effort. Any composite hourly rates must be explained. Include the appropriate occupation code for each labor rate proposed from the Wage Determination discussed in Paragraph (1) below.

TASK ORDER LABOR MATRIX
Annual Task Order Direct Labor Hours for Proposal Purposes

CLASSIFICATION	Category I	Category II	Category III	Category IV	Category V
Technical Professional:					
Computer Scientist	7,520	11,280	7,520	3,760	-0-
Programmer	3,760	11,280	-0-	-0-	-0-
System Analyst	7,520	7,520	-0-	-0-	-0-
Engineer	20,680	33,840	24,440	22,560	-0-
Project Manager	-0-	-0-	7,520	11,280	-0-
Engineer Supervisor	-0-	-0-	3,760	24,440	-0-
Research Scientist	-0-	11,280	7,520	24,440	-0-
Senior Scientist	-0-	-0-	-0-	26,320	20,600
Operational Aircraft Pilot	-0-	15,040	-0-	-0-	-0-
Support Personnel:					
Admin Associate	-0-	3,760	-0-	3,760	-0-
Project Planner	-0-	1,880	1,880	15,040	-0-
Programmer	-0-	3,760	-0-	-0-	-0-
Documentarian	3,760	3,760	-0-	-0-	-0-
Scheduler/Cost Analyst	-0-	1,880	1,880	18,800	-0-
Air Traffic Controller	-0-	1,880	-0-	-0-	-0-
Technician:					
Electronic Technician	-0-	-0-	3,760	24,440	-0-
Test Assistant	-0-	-0-	3,760	-0-	-0-
Designer	-0-	3,760	7,520	7,520	-0-
Mechanical Technician	-0-	11,280	7,520	3,760	-0-
Test Conductor	-0-	-0-	3,760	24,440	-0-
Engineering Associate	-0-	-0-	3,760	18,800	-0-
TOTAL	43,240	122,200	84,600	229,360	20,600

NOTE: A description of each Classification and Category is at Exhibit G.

Other historical workload data is available in the Bidders Library (see L.12).

(1) A copy of the Register of Wage Determinations (WD) and Fringe Benefits issued by the Department of Labor (DOL) for employees under this proposed contract is included as Exhibit C. It should be noted that the wage rates specified therein are minimum rates. It should also be

noted that the wage determination might not list all labor classes to be employed under this contract. Paragraph (a) of the clause entitled "Service Contract Act of 1965" states that in this event, conformable rates must be established for those service employees to be employed under the contract but not listed on the wage determination. These conformable wage rates will be the result of a three-party agreement between the employees, Contractor and the Government. CONFIRM IN YOUR SUBMISSION THAT ALL MINIMUM BENEFITS, INCLUDING HEALTH AND WELFARE, FOR WD EMPLOYEES ARE MET AND PROVIDE CONFIRMING CALCULATIONS.

There are currently no conformed occupation titles under the existing contracts. If conformable rates are established or a new Wage Determination is received prior to the award of the contract, the conformable rates and Wage Determination will be incorporated prior to award.

(2) For each indirect pool, identify the rates and bases used to determine the proposed costs. In addition, each offeror shall provide the basis for all costs associated with ADP Equipment and Software. (If your indirect rates have not been recently reviewed by the responsible DCAA Office, provide for larger indirect pools, e.g., overhead, fringe benefits, G&A, a list of the expense accounts and amounts in the pools. Detail any labor elements in the pools. Provide the most recent three-year history of all indirect rates.) Your proposal must provide details to allow analysis and comparison to the nonprofessional and professional compensation plan(s) set forth in your technical proposal. No Management/Administrative task will be issued. If costs associated with managing and administering this contract, including planning, estimating, and negotiating Task Orders are not included in an established indirect rate, and would normally be charged direct, it is recommended that you establish a rate specifically for this contract. The rate will be used to directly apportion the management and administrative costs of this contract to task orders under this contract. This rate will be included in Section G, G.13, Schedule of Rates for Task Orders.

(3) Material - For estimating purposes use 4% of all (including subcontractors providing any portion of the labor effort) direct labor costs plus any fringe benefit and overhead cost load associated with performing the SOW. Provide support and rationale for any other material costs proposed.

(4) Travel - For estimating purposes use 2% of all (including subcontractors providing any portion of the labor effort) direct labor costs plus any fringe benefit and overhead cost load associated with performing the SOW. Provide support and rationale for any other travel costs proposed.

(5) Other Direct Costs (ODC) - Provide an itemized breakdown and detailed explanation of any ODC proposed for this effort other than those specifically addressed in paragraphs (3) and (4) above.

(6) City/County Business License Tax – Propose any applicable business license taxes and enter your estimates. Consult the City of Hampton regarding personnel you intend to work on-site at LaRC even if your facility will not be located in Hampton.

(7) ISO 9001 - Indicate where in your proposal costs for ISO 9001, if any, are included.

(8) Facilities Capital Cost of Money (FCCOM) – Clearly identify FCCOM if you choose to include it in your proposal (ref. FAR 52.215-16). If you do not propose FCCOM, Clause 52.215-17, Waiver of Facilities Capital Cost of Money, will be included in the contract. As required by NASA FAR Supplement 1815.404-471-5, when FCCOM is included as an item of cost in the Contractor's proposal, a reduction in the profit/fee objective will be made in an amount equal to the amount of FCCOM allowed in accordance with FAR 31.205-10(a).

(9) Escalation – As your cost proposal is expected to reflect the total cost to the Government for you to provide the effort in the statement of work of this solicitation, your proposal should include anticipated escalation. Escalation factors should be clearly stated and escalated amounts shown for each escalated item. Discuss the derivation and rationale for the proposed escalation. Discuss your rationale for not escalating any elements that would normally be escalated. For information purposes, the following are the escalation rates used as guidelines in assessing the reasonableness of proposed compensation increases in proposals:

Year	Rate
2001	2.8%
2002	2.9%
2003 and beyond	3.0%

(10) Award Fee – Clearly show the amounts proposed for award fee. Provide your rationale. Clearly show how FCCOM was considered in the calculation of the proposed fee.

(11) Phase-In - These costs, if proposed, should be fully detailed and supported and should correlate with your technical proposal.

h. Cost Forms and instructions are included as Attachment 4 to this RFP.

i. RATE SCHEDULE INSTRUCTIONS – All Offerors shall complete Section G, G.13, Schedule of Rates for Task Orders, of the contract. This is the schedule of direct labor rates and indirect rates that will be used to establish the cost for Task Orders issued under this contract. The rates in the Schedule must be consistent with those used to establish your proposed costs and fully explained and supported in that proposal. Any deviations must be explained.

G. PAST PERFORMANCE - VOLUME III

1. Factor 3 – Past Performance

It is requested that all information regarding Past Performance including Form PP as defined below be submitted to NASA at the location defined in Block 9 of the Standard From 33 no later than 4:00 p.m. Eastern Standard Time two weeks (including weekends and holidays) prior to the final proposal due date. Proposal will not be considered late if this deadline is not met. Past performance information will be used to assess the extent to which contract objectives (technical, safety, management, schedule and cost) have been achieved on related efforts by the offeror and any significant subcontractors or teaming partners. Experience will be reviewed as the accomplishment of work which is comparable or relevant to the work or effort required by this RFP. This factor includes the evaluation of overall corporate or offeror experience and past performance, but not the experience and performance of individuals who are proposed to be involved with work pursuant to this RFP. For newly formed businesses having little or no company experience, the relevant experience and past performance of a predecessor firm, the company's principal owner(s) or corporate officer(s) will be considered. You are cautioned that omissions or an inaccurate or inadequate response to this evaluation factor will have a negative effect on your overall evaluation.

The Form PP -- Past Performance (Form PP), included in Attachment 2 to this RFP, will be used to collect information concerning the past performance of the offeror and any subcontractor and/or teaming partner. The offeror shall select three of its customers and three customers for each subcontractor and/or teaming partner, for which it has performed relevant work within the past five years and forward copies of the Form PP to those agencies and/or firms for completion and submission to the Contract Specialist for this solicitation. Your customers should return or fax this form to the Contract Specialist no later than the closing date of the solicitation. The address and fax number are listed at the bottom of the first page of the Form PP. Offerors shall include in their proposal the written consent of

their proposed significant subcontractors to allow the Government to discuss the subcontractors' past performance evaluation with the offeror.

Offerors shall include with their proposal a list of the firms that will submit evaluation forms. The offeror shall also include a list of other contracts it has held and any significant subcontractors and/or teaming partners have held within the past five years for requirements similar to those being solicited in this acquisition. Other references, aside from those provided by the offeror, may be contacted and their comments considered during the source selection process. The information submitted may be verified by the Government through discussions with the references provided. While the Government may elect to consider data obtained from other sources, the burden of providing relevant references that the Government can readily contact rests with the offeror.

Offerors shall prepare short narrative explanation on each contract listed or for which a Form PP will be received that identifies its customers and briefly describes the contract, including the objectives achieved and any cost growth or schedule delays encountered. Your summary should include the following for each related contract:

1. Contract Number

2. Contracting Agency

3. Points of contact in the program and contracting offices, including telephone numbers (Please insure that this information is current and correct.)

4. Contract type

5. Contract beginning and end dates

6. Description of the contract work and explanation of its relevance to this solicitation

7. The original cost/price and delivery terms in the contract and the cost/price and delivery actually experienced, and explain any differences.

8. For award fee contracts, separately state in dollars the base fee and award fee available and the award fee actually received, on a contract year basis.

SECTION M - EVALUATION FACTORS FOR AWARD

M.1 METHOD OF EVALUATION

A. Proposals received in response to this RFP will be evaluated by a NASA Source Evaluation Board (SEB) in accordance with NFS 1815.3. Mission Suitability will be scored. Cost and Past Performance will not be numerically scored; however, Past Performance will be rated for each offeror with one of the following adjective ratings: "Excellent", "Very Good", "Good", "Satisfactory", or "Poor". The Source Selection Authority (SSA), after consultation with the SEB and other advisors, will select for contract award the offeror which he or she considers to be able to perform the contract in a manner most advantageous to the Government, all factors considered.

B. The evaluation will be performed on the basis of material presented and substantiated in the proposal and not on the basis of what may be implied. Vague statements will be interpreted as a lack of understanding on the part of the offeror and/or inability to demonstrate adequate qualifications. Your attention is directed to Section L, L.13, which provides important instructions concerning proposal preparation.

M.2 EVALUATION FACTORS

A. Factor 1 - Mission Suitability –The content of this Volume of your proposal will provide the basis for the evaluation of your response to the technical requirements of the RFP. The mission suitability subfactors to be considered and scored in the evaluation of your Technical Proposal are set forth below:

1. Subfactor 1 - Understanding the Requirements

The offeror's understanding of the SAMS requirements, the role of the SAMS contractor, and an understanding of the NASA LaRC research environment will be evaluated. The offeror's correlation of his expertise and that of significant subcontractors or teaming partners in each of the broad functional areas in the Statement of Work will be evaluated.

The offeror's technical approach for the representative task orders identified in Attachment 3 will be evaluated. The offeror's approach to task planning and execution, including a Work Breakdown Structure (WBS) will be evaluated. The offeror's identification of potential problems, risks, and alternatives will be evaluated. The offeror's choices in areas that would represent large differences in risk, time, equipment use, etc. will be evaluated. The offeror's identification of any interface issues (people, equipment, information transfer, etc.) will be evaluated. The offeror's description of the applicable technical documentation to be generated under each representative task will be evaluated.

For each representative task order, a schedule for completion of work, including task start times, key milestone dates, intermediate deliverables and resources will be evaluated. The offeror's proposed prime and subcontractor staffing for each representative task order, including labor categories and labor hours will be evaluated. The offeror's cost estimate (labor, equipment, facilities and materials) for the prime and subcontract effort, including appropriate indirect costs (overhead and G&A), for each representative task order will be evaluated. The offeror's anticipated monthly spending profile for each representative task order will be evaluated.

2. Subfactor 2 - Management and Staffing

The offeror's plan to ensure a smooth, effective, and efficient phase-in will be evaluated, including the proposed schedule with milestones identified for phase-in activities, the narrative explaining accomplishment of these milestones, the personnel involved in the phase-in and the

responsibilities of each, the plan for staffing the effort, and the plan for obtaining the necessary equipment and materials including ADP equipment and software; etc.

The offeror's approach for managing the total contract and the individual task orders will be evaluated. In particular, the offeror's approach for managing the wide range of services covered by the Statement of Work and for insuring consistently good performance to all customers will be evaluated. The offeror's proposed electronic system for issuing, modifying, managing and tracking task orders from initiation to completion will be evaluated. The impact of any proposed subcontracting on the time, effort, cost, or paperwork required to estimate, plan, perform, or manage task orders will also be evaluated.

The offeror's capabilities and depth of its organization (including significant subcontractors or team members) for efficiently and effectively performing the contract effort will be evaluated. The offeror's organizational structure of the contract, lines of authority, and authority/responsibilities of the personnel heading the organizational elements and other key personnel will be evaluated. The offeror's local management authority will be evaluated. The role of any significant subcontractors or team members in the organization will be evaluated. The interfaces within its organization, with its subcontractors or team members, with its corporate organization, and with the Government will be evaluated.

The offeror's corporate resources that are readily available to be utilized to perform the contract will be evaluated. The offeror's ability to provide specialized personnel and recognized experts to meet the requirements of the Statement of Work will be evaluated.

The offeror's approach for handling urgent, short-turn-around-time task orders that require immediate ramp-up of capabilities which are beyond the regular on-site staff will be evaluated. The offeror's ability to adapt to changing requirements, priorities and workload and funding fluctuations without adversely affecting the work will be evaluated.

The offeror's approach for prevention, early detection, and correction of cost, technical, and schedule problems (task and contract level) will be evaluated. The offeror's plan for communicating with the Government regarding problems and associated corrective actions will be evaluated. The offeror's understanding of the major risks associated with the performance of the contract and risk mitigation actions will be evaluated.

The offeror's competitive methodology to effectively attract, retain and motivate a high quality workforce will be evaluated. The offeror's total compensation plan as required by FAR 52.222-46 and NFS 1852.231-71 for both the prime and subcontractors will be evaluated. If applicable, the offeror's policies and procedures relative to uncompensated overtime (see L.8) and the historical basis for any uncompensated overtime proposed will be evaluated.

The effectiveness of the offeror's quality system will be evaluated. (1) The offeror's quality system will be evaluated to establish that the offeror has an operational system which will be utilized to ensure that product delivered or services provided meet LaRC specified requirements. The offeror's quality system will be evaluated for soundness and completeness and to establish that the offeror has adequately addressed the applicable ANSI/ISO/ASQC Q9001 requirements (2) The offeror's quality planning procedure will be evaluated to gain insight into the methods the offeror will utilize to address LaRC requirements and the soundness and completeness of these methods . (3) For those offerors that are not ISO compliant at the date the proposals are due, the Government will evaluate the offeror's expressed corporate commitment to become compliant within nine months of the contract effective date. Offeror's which submit a quality system manual, quality system procedures, and a quality planing procedure demonstrating an effective quality system have the potential to be given the most favorable treatment possible under this evaluation element.

3. Subfactor 3 - Cost Realism

Cost realism is the degree to which all costs for the total contract reflect the proposed approach to achieving the technical objectives. The offeror's cost proposal will be evaluated for cost realism in accordance with the guidelines contained in M.3, Paragraph C.

B. Factor 2 - Cost--An analysis of the proposed cost will be conducted to determine the validity and the extent to which it reflects performance addressed in the technical proposal. An assessment will be made of the offeror's capability to accomplish the contract objectives within the estimated cost proposed. The cost proposal will be used as an aid to determine the offeror's understanding of Mission Suitability Requirements.

C. Factor 3 - Past Performance -- Past performance will be assessed to determine the extent to which contract objectives (including technical, management, schedule, and cost) have been achieved by the offeror and any significant subcontractors and/or teaming partners on related efforts that are comparable and relevant. For newly formed businesses having little or no company experience, the relevant experience and past performance of a predecessor firm, the company's principal owner(s) or corporate officer(s) will be evaluated.

In conducting the evaluation for this factor, the Government reserves the right to use all information available at the time of the evaluation, whether provided in the offeror's proposal or obtained from other sources. For example, the Government may rely on information contained in its own records and that available through reference checks, Government audit agencies, and commercial sources.

M.3 RELATIVE IMPORTANCE OF EVALUATION FACTORS

A. The weights to be used in the scoring of the Mission Suitability Subfactors are presented below:

Mission Suitability Subfactors	Weight
Subfactor 1. Understanding the Requirements	500
Subfactor 2. Management and Staffing	500
Subfactor 3 Cost Realism	(200)

The weights assigned to the above subfactors are indicative of the relative importance of these evaluation areas. The weights are to be utilized by the SSA only as a guide.

B. Overall, in the selection of a Contractor for contract award, Mission Suitability, Cost, and Past Performance will be of essentially equal importance. All evaluation factors other than Cost, when combined, are significantly more important than Cost.

C. As stated above, a pool of 200 points will be used to adjust the Mission Suitability score to account for any weaknesses associated with the lack of cost realism present in the offeror's proposal. This adjustment will be made if the proposed resources are unrealistically high or low according to the following guidelines.

The "cost realism adjustment" will be determined for the overall cost derived from the instructions contained in Section L, L.13,F.1. Depending on the severity of the lack of realism and the associated adjustment, some or all of the points in the cost realism pool will be deducted from the offeror's Mission Suitability score.

The total number of points to be subtracted from the Mission Suitability score will be calculated as follows:

Realism Adjustment	Points
0 - 5%	0 Points
6 - 10%	5 points per each 1% above 5%
11 - 15%	20 points + 6 points per each 1% above 10%
16 -20%	65 points + 7 points per each 1% above 15%
21 - 25%	110 points + 8 points per each 1% above 20%
26 - 30%	155 points + 9 points per each 1% above 25%

ATTACHMENT 1

PROPOSAL COVER SHEET
(Cost or Pricing Data Not Required)

1. SOLICITATION/CONTRACT/MODIFICATION NUMBER

OMB NO.: 9000-0013
Expires: 09/30/98

Public reporting burden for this collection of information is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the FAR Secretariat (VRS), Office of Federal Acquisition Policy, GSA, Washington, DC 20405.

2a. NAME OF OFFEROR	3a. NAME OF OFFEROR'S POINT OF CONTACT	3c. TELEPHONE
2b. FIRST LINE ADDRESS	3b. TITLE OF OFFEROR'S POINT OF CONTACT	AREA CODE / NUMBER
2c. STREET ADDRESS		

2d. CITY	2e. STATE	2f. ZIP CODE

5. TYPE OF CONTRACT *(Check)*

☐ FFP ☐ CPFF ☐ CPAF
☐ FPI ☐ CPIF ☐ OTHER *(Specify)* .....

4. TYPE OF CONTRACT ACTION *(Check)*

.....	A. NEW CONTRACT	.....	D. LETTER CONTRACT
.....	B. CHANGE ORDER	.....	E. UNPRICED OPTION
.....	C. PRICE REVISION/ REDETERMINATION	.....	F. OTHER *(Specify)*

6. PERFORMANCE

PLACE(S)		PERIOD(S)	
	a.		a.
	b.		b.
	c.		c.

7. List and reference the identification, quantity and total price proposed for each contract line item. *(Continue on reverse, if necessary. Use same headings.)*

a. LINE ITEM NO.	b. IDENTIFICATION	c. QUANTITY	d. TOTAL PRICE	e. PROP. REF. PAGE

8. PROVIDE THE FOLLOWING *(If available)*

NAME OF CONTRACT ADMINISTRATION OFFICE			NAME OF AUDIT OFFICE		
STREET ADDRESS			STREET ADDRESS		
CITY	STATE	ZIP CODE	CITY	STATE	ZIP CODE
TELEPHONE ▶	AREA CODE	NUMBER	TELEPHONE ▶	AREA CODE	NUMBER

This proposal is submitted in response to the solicitation, contract, modification, etc., in Item 1. By submitting this proposal, the offeror, if selected for discussions, grants the contracting officer or an authorized representative the right to examine, at any time before award, any of those books, records, documents, or other records directly pertinent to the information requested or submitted. See instructions at Table 15-3.

9a. NAME OF OFFEROR *(Typed)*	10. NAME OF FIRM
9b. TITLE OF OFFEROR *(Typed)*	
11. SIGNATURE	12. DATE OF SUBMISSION

AUTHORIZED FOR LOCAL REPRODUCTION — Computer Generated — **STANDARD FORM 1448** (10-95)
Prescribed by GSA - FAR (48 CFR) 53.215-2(a)

ATTACHMENT 2

PAST PERFORMANCE EVALUATION INSTRUCTIONS

Send the completed form directly to the address or fax number listed at the bottom of page 2. Page one, Section I through III, of the REPP form provides for contractually related descriptive information and identification of the evaluator. Space for comments is provided at the end of the second page (additional pages for comments may be added if desired). Comments would be particularly appreciated concerning excellent and less than satisfactory performance.

Section IV is a form to evaluate the contractor's performance in the areas of Technical Performance, Technical Management and Business Management. The following definitions are offered for your use in assigning a performance level for each element.

EXCELLENT - Exemplary performance of exceptional merit in a timely, efficient, and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance.

VERY GOOD - Very effective performance, fully responsive to contract requirements accomplished in a timely, efficient. and economical manner for the most part; only minor deficiencies.

GOOD - Effective performance; fully responsive to contract requirements; reportable deficiencies, but with little identifiable effect on overall performance.

FAIR - Meets or slightly exceeds minimum acceptable standards: adequate results: reportable deficiencies with identifiable, but not substantial, effects on overall performance.

POOR - Does not meet minimum acceptable standards in one or more areas; remedial action required in one or more areas; deficiencies in one or more areas which adversely effect overall performance.

Section V. Please provide your assessment of the extent of relevant experience associated with our SOW evidenced within the contract for which you are a reference. The following definitions are offered for your use in assigning a performance level for each of the factors in this section.

SIGNIFICANT EXPERIENCE — The contractor routinely performed a full range of services.

MODERATE EXPERIENCE — The contractor has experience in several aspects of a work element, even though the experience may not have been on a continuous basis.

MINIMAL EXPERIENCE - Although at least some of the work may have been performed, such performance was limited in scope or frequency by the contractor.

DID NOT PERFORM - The work element was not performed under the contract.

Section VI requests your comments in areas of contract performance with space at the end for comments relevant to other sections of the PP form.

The following is information about the NASA procurement for which this reference is solicited:

DESCRIPTION – SYSTEMS ANALYSIS AND MISSION SUPPORT (SAMS) SERVICES

Research support services will be required in the following general disciplines (experimental, analytical and computational): full-spectrum aerodynamics, gas dynamics, fluid dynamics, aerothermodynamics, acoustics and aeroacoustics, metallic and non-metallic structures and materials, and airborne systems.

More specifically, services will also be required in, but not limited to, the following technical areas: Computational Fluid Dynamics (CFD) analyses; noise prediction studies and algorithm development; structural acoustic modeling; synthesis and characterization of polymers, piezoelectrics, ceramics, and composites; fatigue testing and damage tolerance analyses; stability and robustness assessments of control systems; experimental flight systems design, development and operation; flight simulation development, operations and maintenance; airborne systems including vehicle dynamics, Guidance, Navigation and Control (GN&C), crew systems, mission critical systems, and flight research; aircraft systems; spacecraft systems including design, development, GN&C, and operations; electromagnetic systems, optics, lasers, and microwave systems, and incidental Information Technology (IT) services in support of primary research tasks.

ATTACHMENT 2

FORM PP –PAST PERFORMANCE
Solicitation **No. 1-132-RB.1002**

I. CONTRACT INFORMATION:

A. Name of Company Being Evaluated:

B. Address:

C. Contract Number:	E. Contract Value:	D. Contract Type:

F. Period of Performance:

II. DESCRIPTION OF CONTRACT:

During the contract performance being evaluated this firm was the ☐ Prime Contractor; ☐ Significant Subcontractor; ☐ Team Member; ☐ Other (Describe)

Does anything other than a customer/supplier relationship exist between the firm being evaluated and your organization? If yes, please describe the nature of this relationship: ☐ No ☐ Yes

III. EVALUATOR:

Name:
Title:
Organization:
Address:
Telephone No.: Fax No.:
E-Mail Address:

SEND TO: ATTN: **126/TOM WEIH**
NASA LANGLEY RESEARCH CENTER
HAMPTON, VA 23681-2199
TELEPHONE: (757) 864-3878 FAX: (757) 864-7898
E-mail: c.t.weih@larc.nasa.gov

This form contains Source Selection Information when completed. See FAR 3.104.

IV. PERFORMANCE

A. Please rate the Contractor's technical performance in the following areas:

1.	Meeting contract requirements	E	VG	G	F	P	N/A
2.	Qualifications of technical staff	E	VG	G	F	P	N/A
3.	Cooperation with customers	E	VG	G	F	P	N/A
4.	Timeliness	E	VG	G	F	P	N/A
5.	Change handling	E	VG	G	F	P	N/A
6.	Ability to work independently	E	VG	G	F	P	N/A
7.	Responsiveness to changing requirements	E	VG	G	F	P	N/A
8.	Documentation	E	VG	G	F	P	N/A
9.	Innovation	E	VG	G	F	P	N/A
10.	Safety	E	VG	G	F	P	N/A
11.	Completeness and accuracy	E	VG	G	F	P	N/A

B. Please rate the Contractor's management in the following areas:

1.	Utilization of personnel	E	VG	G	F	P	N/A
2.	Effectiveness of management	E	VG	G	F	P	N/A
3.	Compliance with the contract	E	VG	G	F	P	N/A
4.	Personnel management	E	VG	G	F	P	N/A
5.	Phase-in	E	VG	G	F	P	N/A
6.	Management of diverse tasks	E	VG	G	F	P	N/A
7.	Work control	E	VG	G	F	P	N/A
8.	Technical Reporting	E	VG	G	F	P	N/A
9.	Corporate Support	E	VG	G	F	P	N/A
10.	Local management autonomy	E	VG	G	F	P	N/A
11.	Cost Control	E	VG	G	F	P	N/A
12.	Business Reporting	E	VG	G	F	P	N/A
13.	Procurement	E	VG	G	F	P	N/A
14.	Subcontract Management	E	VG	G	F	P	N/A

V. RELEVANT EXPERIENCE

RELEVANT EXPERIENCE				
WORK ELEMENT	SIGNIFICANT	MODERATE	MINIMAL	N/A
Aerodynamics				
Aero-Acoustics				
Airborne Systems				
Structures and Materials				
Space Sciences				
Space Access				
Fluid Dynamics				
Information Technology				

VI. COMMENTS.

PLEASE COMMENT ON CONTRACTOR PERFORMANCE IN THE FOLLOWING AREAS:

1. Would you recommend this contractor for another contract? ☐ YES ☐ NO, Why?

2. Comment on staffing stability in critical skill areas and supervisory positions.

3. Overall cost management

4. Award Fee Incentive Fee Performance

5. Additional Comments

ATTACHMENT 3

Representative Task Order

Representative Task C-1

1. Task Order Number:: -------- **Revision: -** **Date of Revision:**
Title: CAN Instrument/OV-10 Aircraft Integration Engineering Services

2. Purpose, Objective or Background of Work to be Performed:
Provide engineering design, analysis, fabrication, integration, and ground test services to adapt, install, and operate the existing CAN Interferometer Instrument into the NASA LaRC OV-10 aircraft. CAN is a high performance interferometer-based remote sensing instrument designed and built by XREM-Labs to fly in the NASA ER-2 High Altitude Aircraft. The OV-10 is an aircraft based at LaRC which will provide a platform for instrument testing and science data flights of CAN. For this task, the CAN instrument shall be considered the only payload in the OV-10. Specifications of the CAN component sizes, weights, and power requirements are listed in the attached Data Package. The existing aircraft rack that supports the CAN in the ER-2 shall be retained in the OV-10 installation if possible, since the isolation system that supports the CAN instrument canister is designed to interface with the rack. Required modifications to the CAN instrument shall be designed so that the instrument may be returned to the ER-2 flight configuration. The vibration-sensitive interferometer system is located inside the sealed instrument canister. The CAN scans below the aircraft with a down-looking, movable mirror located on the aft section of the instrument canister. Use of CAN in the OV-10 will require an open (no glass) view port in the OV-10 aligned with the CAN down-looking scan mirror view port.

3. Description of the Work to be Performed (list all Tasks, Deliverables and/or Products, and Performance Measurements):

The Contractor shall design, analyze, fabricate, integrate and ground test the hardware necessary to adapt and operate the CAN instrument in the OV-10 aircraft. NASA-LaRC will review and give final approval for the design concept.

The Contractor shall be responsible for resolving design-related issues during fabrication and installation of the hardware. Bi-monthly status meetings shall be scheduled and held with project manager and the project engineer to provide design updates and resolve engineering development issues within the scope of this task.

GENERAL DESIGN CONSIDERATIONS:

- The view port for the CAN shall be designed into the removable rear door of the OV-10. The vibration environment of the OV-10 shall be considered in the hardware design and additional vibration isolation shall be provided in the interface between the CAN instrument canister and the OV-10 if analysis shows it is feasible.
- The various components of the CAN instrument are connected with existing electrical interface cables. The length each is listed in the Data Package. The cable lengths cannot be modified for the OV-10 installation. The overall power requirements of the CAN instrument are listed in the Data Package.
- The Contractor shall determine the power capability of the OV-10, and develop a means of power conversion if necessary to accommodate the CAN instrument power input. The CAN canister heater power is designed for ER-2 aircraft operation, and may likely be reduced for OV-10 operation. The CAN instrument power is constant and cannot be reduced. If the CAN canister heater power must be reduced to meet OV-10 power capability or thermal requirements, the Contractor shall determine and document the CAN canister heater power reduction. The Contractor shall provide a block diagram of the OV-10 power conversion scheme to accommodate the CAN instrument.

3.1. DELIVERABLES (GENERAL INFORMATION):

Engineering drawings and parts lists of the integration hardware shall be provided in paper and electronic copies for each component as well as the assembled hardware. Analyses of the integration hardware shall be given in a paper report listing per item margins of safety and other applicable data. The engineering design drawings shall be prepared with the Pro-Engineer CAD source code. Paper and electronic copies of engineering and assembly drawings representing `as-built' condition of delivered hardware shall also be deliverables.

The listed items shall constitute the specific deliverables for this task.

	DELIVERABLE	DATE
3.1.1.	*Preliminary design of the CAN interface to the OV-10.*	8/1/00

The Contractor is to complete a preliminary design for the CAN/OV-10 installation, including required analyses, leading up to a Preliminary Design Review (PDR) at LaRC.

PERFORMANCE STANDARD: The hardware modifications to the OV-10 and to the CAN instrument shall be defined. A preliminary definition of the interface hardware shall be completed. Engineering drawings shall be fifty percent (50%) completed. A preliminary estimate of the resource requirements shall be defined and approved by the CAN project manager. A Requirements Matrix shall be defined, which shows that the project requirements will be met by the installation design. The Contractor shall provide presentation materials to support the PDR.

3.1.2.	*Deliver final engineering design.*	10/1/00

The Contractor is to complete the design, development, and analysis of the CAN/OV-10 installation, including required analyses, leading to a Critical Design Review (CDR) at LaRC.

PERFORMANCE STANDARD: The design of hardware modifications to the OV-10 and to the CAN instrument shall be completed. The interface hardware shall be fully defined. Ninety percent (90%) of the engineering drawings shall be completed. The resource requirements shall be completed and approved by the CAN project manager. The Requirements Matrix shall be completed showing that the project requirements will be met by the installation design. All required analyses shall be completed. The Contractor shall provide presentation materials to support the CDR.

3.1.3.	*Perform the fabrication, assembly and integration of items 3.1.1 & 3.1.2.*	11/1/00

The Contractor shall provide a fabrication, assembly, and integration plan. The Contractor will also implement the fabrication, assembly, and integration plan with project personnel approval. The Contractor shall complete all plan milestones within two weeks of final product delivery.

PERFORMANCE STANDARD: The hardware shall be successfully fabricated. All discrepancies shall be identified, and a fix implemented and documented. All CAN instrument components shall be successfully assembled into the final flight configuration. Weights and center of gravity calculations shall be within 10% of the predicted values. The CAN instrument shall be fully functional in the installed configuration. Engineering design and analysis of 'as built' delivered hardware; including any revisions, shall be delivered to the project manager.

The ability of final release engineering detailed drawings to describe accurately 'as-built-condition'

of delivered components and assemblies shall be evaluated as follows: 40 hours of engineering drafting required to make final release drawing in full compliance with "as-built-condition" shall constitute "MA" and 6 hours or less of required changes shall constitute "SE" rating.

3.1.4. *Develop ground and flight test plans. Performance of ground tests per plan.* 12/1/00

The Contractor shall develop a ground test program to verify performance of the integration hardware during and following final installation into the OV-10. The Contractor shall demonstrate, to the fullest extent possible, the function of the CAN instrument by exercising the ground test plan. The Contractor shall also develop a flight test program to verify performance of the CAN instrument during the first engineering flights. Performance of the flight tests remains the responsibility of the Government.

PERFORMANCE STANDARD: All items listed in the Requirements Matrix shall be verified to within 10% of the required value. The OV-10 power required by the CAN instrument shall be verified, and shall be within 10% of the predicted value. Flight operation of the CAN instrument in the OV-10 shall not degrade the science data performance by more than 10% of the predicted value.

3.2 METRICS:

Progress achieved in meeting the Performance Standards on time within Contractor's planned cost and reported in the monthly progress reports will be used as surveillance.

4. Government Furnished Items: Existing Government files documenting the current status of the CAN instrument will be provided. These files (electronic and paper) include calculations, drawings, and specifications.

5. Other information needed for performance of task. None.

6. Security clearance required for performance of work: None.

7. Period of Performance	
Planned start date: 04/1/2000	Expected completion date: 12/1/2000

8. NASA Technical Monitor:
M/S: T. M. Onitor Phone: 757-864-nnnn

CAN Rack Mounted Components:

ITEM	Front Panel		Total Depth	Max. Width	Weight
	Height	Width			
Processor Electronics Box	9"	20.25"	24" (w/ cables)	17"	52.1 (w/cables)
Heater Control Elect. Box	3.5"	20.13"	10.13"	17"	6.5
Interferometer Elect. Box	7"	19"	10.5"	17.38"	14.4
Power Conditioning Box	7"	19"	10.5"	17"	24
Calibration Control Electronics Box	7"	19"	10.25"	17"	13.8
GPS Unit	15.75"	19"	7.2"	17"	30

CAN Flight Configuration Weights (lbs.):

Instrument Canister (Sensor Head)	167.5
Window Fixture	16
Cables To Canister	2.5
Processor Electronics (w/ Cables)	52.1
Interferometer Electronics	14.4
Power Conditioner Electronics	24
Calibration Control Electronics	13.8
Heater Control Electronics	6.5
Heater Control Power Cable	0.5
GPS Unit	30
Cables Between Electronics Boxes	16
GPS Cable From Unit To Bulkhead	1
GPS Cable From Bulkhead to Antenna	0.5
GPS Antenna	0.5
Total	345.3

CAN Power Consumption:

Item	Power Consumption, Watts	
	400 Hz, 120 VAC, 3 Phase	Conditioned 28 VDC
Main Instrument	980	90
Heater Control Electronics	2150	28

Representative Task R-1

1. Task Order Number: _____ Revision: ____ Date of Revision: ___
Title: Acoustic Test of the 12" Advanced Ducted Propeller (ADP)

2. Purpose, Objective or Background of Work to be Performed:
The purpose is to provide mechanical, electronic, software development, and data analysis support for an acoustic test of the 12" Advanced Ducted Propeller (ADP) demonstrator in a subsonic wind tunnel.

The ADP demonstrator, its control system, and support hardware have been operated in a subsonic wind tunnel on previous occasions. Installation and operation of the model are well documented. The acoustic data are acquired by a linear array of 16 microphones, which array is mounted on an airfoil structure that can be remotely traversed in the flow direction to user specified locations. A complete traverse of the microphone array thus maps out a rectangular grid of microphone locations in a horizontal plane beneath the demonstrator. The airfoil traverse, its drive hardware, the microphones, amplifiers, filters, and data acquisition system are all Government-furnished. The data acquisition system has recently been acquired and has not been used in this test configuration before. It is planned that this computer will be used to acquire the acoustic data as well as to control the axial position of the microphone array. The aeroacoustic data acquisition system will also interface with the wind tunnel data acquisition system and will acquire the wind tunnel parameters necessary to correct the acoustic data.

3. Description of the Work to be Performed: List all Subtasks, Deliverables and/or Products, Schedule(s), Performance Metrics (for surveillance), and Performance Standards (for award fee determination).

The Contractor shall perform the following Subtasks:

A. Develop the data acquisition and acoustic array control software on the Government-furnished PC platform running current version of Windows Operating System.

1. Develop software to interface with the microphone array controller to send commands to move the traverse and to poll traverse status. The total travel for the traverse is approximately 57 feet, and the positioning accuracy of the traverse should be 0.1 inch or better.
2. Develop software to poll the data acquisition system and to acquire acoustic data. It is expected that the acquisition rate will be 65536 samples per second and that each acquisition will be 20 seconds. The signals from the sixteen microphones shall be acquired simultaneously so that the relative phase of the signals can be calculated. A typical run consists of one wind tunnel speed and three model speed settings. A typical traverse consists of seventeen microphone array locations.
3. Develop software and hardware to interface the aeroacoustic data acquisition system with the wind tunnel data system to acquire tunnel parameters such as test, run, and point numbers, temperature, pressure, relative humidity, and wind speed and to record these data at each acoustic data acquisition.
4. Integrate the acoustic data acquisition, wind tunnel data collection, and microphone array control into an automated test control system. The system should include an override in order to permit the operator to control moving the array to a predetermined location and initiating data acquisition.

B. Perform a model set-up, configuration changes, and tear-down. It is expected that the duration of the entire test window in the wind tunnel will be ten weeks, of which two weeks will be used for experiment set-up and model build-up, seven weeks will be used for data collection, and one week will be used for model tear down. It is expected that the test matrix will require six model configuration changes, and past experience has shown that the model changes can be completed in 1/2 to one shift, depending on complexity.

1. Set-up involves installation of the 12" ADP demonstrator in the wind tunnel. It includes installing centerbody (which contains the compressed air drive turbine) on the model sting, installing the fan rotor and fan exit guide vanes on the centerbody, building up the nacelle as required by the test matrix, and connecting engine control cabling and turbine lubrication hydraulics lines.
2. Expected configuration changes include adding or removing pressure- and temperature-sensing rakes on the model, swapping out nacelle parts, and installing different rubstrips. Configuration changes are made as required by the test matrix.
3. When the test is complete, tear the model down and prepare it for shipping to the storage location.

C. Acquire test data, per requirements of the NASA-provided test matrix.

1. Perform daily end-to-end calibration of the data acquisition system.
2. Provide near real-time data quality checks including, but not limited to: data diagnostics (rms., minimum and maximum values), plots of time series and auto- and cross-spectra for each of the 16 channels.
3. Archive raw data on permanent storage medium.

D. Provide post processing services.

1. Correct the data for off-standard conditions such as temperature, relative humidity, air flow speed, and propagation distance.
2. Reduce the data. It is expected that the data will be presented in the frequency domain as contours of fly-over noise and will include noise levels for various configurations as well as noise level deltas to compare the acoustic effect of certain configuration changes.
3. Present data in suitable format as required for publication or presentation in a public forum.

Deliverable:
A report containing:
1. The data reduction routines used in the analysis, the theoretical development of the algorithms used in the data analysis, and a list of the documentation necessary to support the analysis methodology used.
2. Documentation of the control software for the microphone array positioning.
3. Documentation of the acoustic data acquisition system, including description of parameters such as data acquisition rates, sample size, data weighting, averaging technique used, data file management, data archiving, and retrieval of the wind tunnel data collection.
4. Sample cases to demonstrate the validity of the data reduction.
5. All specified plots in electronic as well as printed form.

Schedule:
1. Three Months - Proof demo of data acquisition and acoustic array control software
2. Six Months - Final Report.

4. Government Furnished Items: NONE

5. Other information needed for performance of task.
   A. All software must be developed following NASA Langley standard procedure LMS-CP-5528 Software Planning, Development, Acquisition, Maintenance, and Operation.
   B. All wind tunnel planning, preparation, and testing must adhere to the following NASA Langley standard procedures where applicable:
   - LMS-OP-514 Conducting Aerodynamic Research Within Laboratory Wind Tunnels
   - LMS-CP-502 Wind Tunnel Test Planning
   - LMS-CP-503 Wind Tunnel Model Build-up and Installation

- LMS-CP-504 Conducting a Wind Tunnel Test

C. Year 2000 Compliance: Any information technology (IT) provided under this task must be Year 2000 Compliant. To ensure this result, the Contractor shall provide documentation, comprised of the "Contractor Y2K Compliance Verification Form" and its supporting documentation, describing how the IT items demonstrate Year 2000 compliance.

6. Security clearance required for performance of work:	
7. Period of Performance: Six months	
Planned start date:	Completion date:

8. NASA Technical Monitor: T. M. Onitor
M/S: Phone: 757-864-nnnn

Representative Task W-1

1. Task Order Number: TBD Revision: ____ Date of Revision:
Title: Systems Analysis of Future Space Mission Architectures

2. Purpose and description of the Work to Performed:

NASA LaRC has been requested to facilitate an agency wide systems analysis capability to identify technology trades and perform preliminary design and definition of future space mission architectures. The capability and analysis that utilizes it will need to cover all aspects of the mission life cycle from concept definition to end of life disposal. In addition to typical engineering analysis in the areas of vehicle design and simulation, the systems analysis environment will have the ability to assess variations in cost, risk, programmatics and operations as function of space mission architecture parameters. The tools associated with the environment must be collaborative in nature and build upon existing Aerospace Systems Concepts and Analysis Competency (ASCAC) analytical capabilities as well as interface with the Large Scale collaborative engineering Applications (LSAs) being developed throughout the agency in cooperation with the Intelligent Synthesis Environment (ISE). The Contractor shall develop a methodology for pulling together an agency-wide systems analysis capability and a process for utilizing it. The Contractor will also identify any required capabilities that do not exist in support of sample missions.

3. Tasks, Deliverables and/or Products:

The Contractor shall identify all analytical capabilities and procedures required to facilitate an agency wide systems analysis of a proposed human lunar mission combined with a robotic sample return mission to/from Europa. Existing technologies as well as revolutionary technologies shall be considered. Three Earth to orbit access systems can be assumed. The first is a small crewed transportation system, the second is a Titan class ELV and the third is a high G rail gun system that can economically launch raw materials from Earth in 2000 Kilogram segments on an hourly basis. Controlled and sustained nuclear fusion that requires Helium-3 is assumed to be a reality leading to a required lunar outpost for Helium-3 extraction. Data from an orbiting spacecraft around Europa has indicated an area of melted ice that could sustain some form of life. Contamination concerns dictate that the Europa sample return mission be launched from the Lunar surface with the sample returning to the Lunar base for analysis.

Deliverables:
- A plan that identifies systems analysis capabilities and processes required to model all aspects of the above sample mission. - 2 months after start
- A functioning prototype environment that can be utilized by ASCAC to perform trades of how key mission variables impact cost, risk and schedule. - 6 months after start

Performance Standard:
Identification and utilization of systems analysis capabilities that do not exist within NASA via industry and academic partnerships to minimize new investments would exceed expectations.

4. Government Furnished Items:

5. Other information needed for performance of task.
http://centauri.larc.nasa.gov
http://nike.larc.nasa.gov
http://ise.larc.nasa.gov

6. Security clearance required for performance of work:

7. Period of Performance: Not to exceed one year.

Planned start date:	Completion date:

8. NASA Technical Monitor: T. M. Onitor
M/S: Phone: 757-864-nnnn

Representative Task S-6

1. Task Order Number and Title

TITLE: CHARACTERIZATION OF LIGHTWEIGHT STRUCTURES

2. Purpose, objective or background of work to be performed:

The performance of large lightweight structures will be evaluated in NASA-Langley structure laboratories to study the behavior of full-scale structures designed for application to air and spacecraft. This task will support this effort by providing analytical predictions and methods, fixture design and test support.

The first structure will be of sandwich construction and subjected to two load conditions, which simulate landing and flight loads. The test article will be attached to a vertical wall and loaded through four actuators. The finite element analysis must consider nonlinear and buckling effects, behavior around one specified damage location, the influence of imperfections on failure, and the prediction of damage propagation and final failure based on local failure of the facesheets and core. The contractor may be required to develop user written subroutines to either conduct the analysis or to post process the data.

The second structure will be similar to a space platform or truss segment that may be deployed in space. The structure will be loaded through one to two actuators. Analysis of this ultra-lightweight structure will include the structure's response to launch loads, deployment loads and long-term loading after deployment. The finite element analysis must consider nonlinear and buckling effects, effect of varying boundary conditions and uneven load introduction, the influence of imperfections on failure, and prediction of failure based on local or global behavior. The contractor may be required to develop user written subroutines to either conduct the analysis or to post process the data.

3. Description of the work to be performed:

The contractor shall analyze two large aerospace structures. In each case, NASA will provide drawings of the test article or other model information for the contractor to use in the analysis. NASA will require criteria for structural integrity, including impact damage tolerance, to be developed by the contractor by conducting analytical and experimental studies on sub-component specimens and laminates. These analytical studies require transient dynamic and 2-D/3-D analysis methods to be used by the contractor. NASA will also provide material properties including allowable stresses and strains as appropriate for the analytical predictions. The contractor shall use finite element analysis to predict the behavior of each test article and load introduction fixtures. The contractor shall design fixtures for testing of the test article with actuators, fixtures, etc. The contractor shall conduct tests and provide post-test comparisons of initial test data predictions. Refinement of finite element analysis may be necessary to explain test article behavior after testing is underway or after completion of the final test. Finally, a major component of this task will require the contractor to develop new analysis, damage prediction, and failure methodologies for representative composite structures.

3.1 Subtask 1 - Sandwich structure
3.1.1 Design fixtures for attaching actuator assemblies to structure and to floor.
3.1.2 Conduct finite element analysis of test article.
3.1.3 Predict the behavior of the test specimens in detail including predictions at strain gages at approximately 100 locations and displacement predictions at approximately 10 locations. Predict buckling loads and failure loads, modes and locations.
3.1.4 Provide expert consultation during the assembly of the test article and load components.
3.1.5 Compare all test data to predictions and evaluate behavior for one test for each of two load conditions.
3.1.6 Develop user written subroutines or modify NASA developed analysis method to include additional parameters and effects determined during testing.
3.2 Subtask 2 - Ultra-lightweight space structure

3.2.1 Design test fixtures for test article, actuator assemblies, and placement of specimen with actuator assembly
3.2.2 Conduct finite element analysis of test article.
3.2.3 Predict the behavior of the test specimens in detail including predictions at strain gages at approximately 30 locations and displacement predictions at approximately 30 locations. Predict buckling loads and failure loads, modes and locations, and axial and bending stiffnesses.
3.2.4 Provide expert consultation during the assembly of the test article and load components.
3.2.5 Compare all test data to predictions and evaluate behavior for one test for each of load conditions.
3.2.6 Develop user written subroutines or modify NASA developed analysis method to include additional parameters and effects determined during testing.

Deliverables (common to both sub-tasks):
A. Fixture designs will be provided including all detail necessary for fabrication.
B. Supporting analysis will be provided showing that these fixtures will meet requirements for sandwich and ultra-lightweight structures.
C. Finite element models in PATRAN or other electronic format.
D. Input data file for finite element analysis. Detailed results describing specimen behavior as described above.
E. Strain gage and displacement predictions for test article. Buckling load predictions and failure load, mode and location, and stiffness predictions.
F. Post-test plots comparing test and analysis results identifying any discrepancies.
G. A final report that documents all work conducted under this task in the form of one or more NASA CRs.

Schedule:
Subtask 1 – 6 months
Subtask 2 – 6 months

4. Government furnished items:

NASA Langley will provide all test equipment, materials, and specimens for performing the required tests.

5. Other information needed for performance of task:

A. All software must be developed following NASA Langley standard procedures LMS-CP-5528 Software Planning, Development, Acquisition, Maintenance, and Operation.
B. All planning, preparation, and testing must adhere to the following NASA Langley standard procedures where applicable:
   - LMS-OP-5304 Structures and Materials Non-Wind Tunnel Experiment Process
C. Year 2000 Compliance: Any information technology (IT) provided under this task must be Year 2000 compliant. To ensure this result, the contractor shall provide documentation, comprised of the "Contractor Y2K Compliance Verification Form" and its supporting documentation, describing how the IT items demonstrate Year 2000 compliance.

6. Security clearance required for performance of work:

Unclassified

7. **Period of Performance:**	
PLANNED START DATE:	OCTOBER 1, 2000
COMPLETION DATE:	OCTOBER 1,2001

8. **NASA Technical Monitor:**	
M/S: T.M. Onitor	Phone: 757-864-nnnn

Representative Task G-1

1. Task Order Number: _____ Revision: ____ Date of Revision: ___
Title: Reaction Control System (RCS) Jet Interactions with Hypersonic Flows

2. Purpose, Objective or Background of Work to be Performed: RCS jets are proposed for aerodynamic control of various hypersonic vehicles, including Reusable Launch Vehicles and Planetary Entry Vehicles. In some proposals, these jets emerge from scarfed nozzles (cut flush with the contour of the vehicle outer mold line). Interactions of the jet with hypersonic, external flow along the side of the vehicle are expected to produce local hot spots upstream of the nozzle and produce net forces non-linearly related to the nozzle thrust. The objective of the task is to develop analysis tools that can be used to quantify aerothermodynamic interactions for use in the design process. These tools should range from low fidelity, fast running capability for preliminary design trades to high fidelity computational fluid dynamic (CFD) analyses of the compressible Navier-Stokes equations. Space shuttle trajectory at Earth or Viking trajectory at Mars for lifting bodies of order 10 meters in length may be considered for demonstration purposes.

3. Description of the Work to be Performed: List all Subtasks, Deliverables and/or Products, Schedule(s), Performance Metrics (for surveillance), and Performance Standards (for award fee determination).

Task 1 - High Fidelity CFD analysis tool of RCS jet interaction with external, hypersonic flow field: A CFD simulation tool shall be provided which will embed grid and boundary conditions for a RCS jet into an existing CFD solution for external, hypersonic flow over a vehicle. The tool shall be able to allow the user to vary nozzle geometry, position, and thrust levels. The tool shall allow the user to set inflow and outflow boundary conditions such that the entire external flow field need not be recomputed if outside the zone of dependence. The Contractor may develop a new CFD tool or adapt an existing tool to this purpose. If the Contractor develops a new tool, he or she shall define algorithm features and physical models that will be required to execute the simulation. If the Contractor uses an existing CFD code, he or she shall identify code features that enable use of the tool for this application. In like manner, the Contractor shall define grid generation/adaptation strategies, using new or existing tools, and features required to execute high fidelity simulations for this application. Given nozzle geometry parameters and location on vehicle, time required to process new grid and extract relevant sub-domain in work station environment - 30 minutes. Time to generate high fidelity, CFD grid converged solution onsub-domain with firing thruster on 2 processor SGI R12000 Octane - 12hrs

Task 2 - Engineering analysis tool of RCS jet interaction with external, hypersonic flow field: An engineering analysis tool shall be provided which will be able to run on workstation environment (SGI R10000) on order of seconds (no longer than 5 minutes) and shall produce estimates of net forces and induced heating associated with the jet interaction. Inputs to the tool could come from CFD solutions or engineering approximations to the jet-off conditions. Contractor may develop new tool or adapt existing tool. Contractor shall describe basis for development of tool. Time to generate engineering solution on workstation environment - 5 minutes

Task 3 - Tool validation: Contractor shall either (1) identify datasets that can be used to validate the high-fidelity and engineering analysis tools, or (2) define ground-based experiments and facilities that can be used to obtain validation data. Contractor shall identify elements of the model in greatest need of validation and define methodology used to quantify uncertainties. Execution of new ground based experiments is not required. Deliver 10 separate references that can be used to validate the simulation of a jet firing in a supersonic/hypersonic external flow ranging from simple to complex geometries including data on induced pressures and

heating surrounding the nozzle. Each data set need not include force and Moment and pressure and heating, but the collection of datasets should include all of these elements.

Performance Standards:
Satisfactory - Hit standard within +/- 10%
Excellent - Tasks 1 and 2: Reduce time metric more than 10%; Task 3 three or more datasets of the ten with multiple datapoints for each quantity—force, moment, pressure, and heating

4. Government Furnished Items: None

5. Other information needed for performance of task. None

6. Security clearance required for performance of work: None

7. Period of Performance 1 year	
Planned start date:	Completion date:

8. NASA Technical Monitor:
M/S: T. M. Onitor Phone: 757-864-nnnn

ATTACHMENT 4

Cost Forms (See Microsoft Excel File)

INSTRUCTIONS FOR COST FORMS A-C

1. NASA Langley Research Center thanks you for your interest in this procurement. We, like all organizations, are finding ways to improve efficiency. Although your cost proposal must be submitted pursuant to FAR 52-215-20, Alternate IV, and supported as required by specific parts of Table 15-2, we now require FAR 52-215-20, Alternate IV, and supported as required by specific parts of Table 15-2, we now require "selected" cost information be submitted in a specific format. (Cost Forms A-C). This reduces duplication of data input effort, minimizes errors, and allows a consistent evaluation of all proposals. Your help in this matter is extremely important. Following the instructions found paragraph 13.F of the RFP, those below, and those on the Cost Forms will help insure a timely and fair evaluation.

2. Submit all Cost Forms A-C, along with supporting rates and factor data, under a single file name or directory. This allows data produced by formulas, referenced cells, etc. to "flow" through the applicable portions of all Cost Forms.

3. Identify, explain, and reconcile any differences between Cost Form classifications and/or rates and those classifications and/or rates in your established accounting system. If the contract years are not consistent with your fiscal years, provide your fiscal year rates and show how the contract year rates were developed therefrom. This establishes an audit trail from the Cost Forms to DCAA approved rates and factors.

4. Do not move cells and do not insert or delete rows or columns (The exception is that lines may be added on Cost Forms B and C under Contract Support). This consistency makes your proposal information on the Cost Forms compatible with our evaluation program. However, you may change column widths, formats, fonts, etc.

5. Your electronic cost submissions shall be true self-calculating spreadsheets, i.e., including all rates, factors, and formulas used to derive your costs. If possible, do not use absolute values; however, if absolute values are used they must be explained and their values supported. A chart of rates and factors as a basis for formulas is invaluable as this allows for verification of formulas and let changes and allows corrections and changes "flow" through the Cost Forms.

6. Read carefully and follow the instructions provided on each Cost Form.

7. Cost Form A: The "Total Direct Labor Hours" should correspond to those hours itemized in Cost Forms B. Any variance shall be explained.

8. Cost Form A: "Subcontract Direct Labor Costs" plus "Profit and Costs Other than Labor in Direct Labor Subcontracts" shall equal the proposed price submitted for Subcontractors and be supported by their fully executed Cost Forms A-C. If they do not equal, explain.

9. Cost Form A: The costs shown for "Payroll Taxes/Fringe Benefits" will not necessarily correlate with Cost Form C; however, the derivations of the cost must be traceable and their relationship clear.

10. Cost Form A: "Other Overhead" should include costs of elements in your overhead pool other than those payroll taxes and fringe benefits detailed on Cost Form C. Costs on this line shall be itemized and fully explained.

11. Cost Form A: "Contract Specific Overhead" should include labor and related costs associated with managing and administering the contract, if not included in an established indirect rate. See L.13.F.1.g.(2).

12. Cost Form A: "OTHER: Costs not Shown Elsewhere" are other direct costs not included in other lines. They shall be itemized and fully explained and supported.

13. Cost Forms A & B: Contract Support Labor is outside the labor categories and hours establish in the matrix in RFP paragraph L.13.F.1.g. Hours proposed in this category is not to be used for effort to support the functions required by the to-be-issued Task Orders to perform the SOW just as the Task Order Labor Matrix hours are not to be used for the overall contract management and administrative support. Contract Support Labor is the basis for the Contract Specific Overhead and information on these forms is solely to provide insight to your understanding of this portion of the requirement.

BEFORE YOU SUBMIT THIS COST PROPOSAL:

* Be sure you have complied with the instruction provided in the RFP and in this spreadsheet.
* Verify the cell contents are showing formulas rather than absolute values.
* Confirm all categories and elements been addressed.
* Save all electronically submitted price information and Cost Forms under a single file or directory name.
* Indicate below that this instruction sheet has been read.

This instruction sheet has been read: TYPE IN YOUR NAME, TITLE, AND THE DATE

CONTRACTOR:_____
Systems Analysis and Mission Support (SAMS)
RFP 1-132-RB.0002

COST FORM A
PROPOSED COSTS FOR TOTAL EFFORT
Solicitation 1-132-RB.0002 - Systems Analysis and Mission Support

PROPOSER:_____

	* 1, 2	TOTAL	PHASE-IN	CONTRACT YEAR 1	CONTRACT YEAR 2	CONTRACT YEAR 3	CONTRACT YEAR 4	CONTRACT YEAR 5
LABOR HOURS:	3							
Straight Time								
Overtime								
Subcontract								
Total Direct Labor Hours								
DIRECT LABOR COSTS:	3							
Straight Time								
Overtime Excluding Premium								
Overtime Premium								
Subcontract								
Total Direct Labor Costs								
OVERHEAD:								
Payroll Taxes/Fringe Benefits	4							
Other Overhead	5							
Contract Specific Overhead	6							
Total Overhead								
OTHER:								
Profit and Costs Other than Labor	7							
in Direct Labor Subcontracts								
Material	8							
Travel	9							
Business License Tax								
Other ODCs	5							
Costs not Shown Elsewhere	5							
Total ODC								
MATERIAL HANDLING								
SUBTOTAL								
G&A								
FCCOM								
TOTAL COST								
AWARD FEE								
TOTAL PRICE								

*** INSTRUCTIONS**

(1) Cost Form A is the summary of all proposed costs. Summarize in Cost Form A the applicable information detailed in Cost Forms B and C.
(2) Provide formulas (bases and rates) used to derive all dollars shown on all Cost Forms.
(3) Support with Cost Form B.
(4) Support with Cost Form C for Year 1 (See Note 8 on Cost Form C).
(5) Itemize and provide details.
(6) This is the specific Overhead addressed in L.13.F.1.g.(2) for contract management and administration which might otherwise be a direct charge or charged to a managament/administrative task.
(7) The dollars on the "DIRECT LABOR COSTS: Subcontract" line plus the dollars on the "OTHER: Profit and Costs Other than Labor. Direct Labor Subcontracts" line must total the total price proposed for subcontractors providing direct labor under this contract. Each subcontractor providing direct labor must provide applicable Cost Forms pursuant to RFP Paragraph L.13.F.1.c.
(8) Include the 4% estimate specified in RFP Paragraph L.13.F.1.g.(3).
(9) Include the 2% estimate specified in RFP Paragraph L.13.F.1.g.(4).

CONTRACTOR:_____
Systems Analysis and Mission Support (SAMS)
RFP 1-132-RB.0002

COST FORM B

DETAILS OF PRODUCTIVE HOURS AND DIRECT LABOR COSTS

Solicitation 1-132 RB.0002 - Systems Analysis and Mission Support

PROPOSER:_____ Escalation rate applied: _____

Contract Year 1 LABOR CATEGORY	NO. OF POSIT.	PRODUCT-IVE MAN-YEAR	STRAIGHT-TIME HOURS	OVER - TIME HOURS	HOURLY LABOR RATE	STRAIGHT-TIME COST	OVERTIME COST (EXCLUDING PREMIUM)	OVERTIME PREMIUM COST	TOTAL DIRECT LABOR COST
Technical Professional:									
Computer Scientist									
Programmer									
System Analyst									
Engineer									
Project Manager									
Engineer Supervisor									
Operational Aircraft Pilot									
Senior Scientist									
Operational Aircraft Pilot									
Support Personnel:									
Admin Associate									
Project Planner									
Programmer									
Documentarian									
Scheduler/Cost Analyst									
Air Traffic Controller									
Technician:									
Electronic Technician									
Test Assistant									
Designer									
Mechanical Technician									
Test Conductor									
Engineering Associate									
Total Task Order Direct Labor									
Contract Support:									
Contractor Support Total									

INSTRUCTIONS

(1) Annotate with a # any category provided by a subcontractor, in whole or in part. Provide separate Cost Forms for prime and subcontractor information.

(2) Provide formulas (bases and rates) used to derive all dollars shown.

(3) The composition of a composite rate must be shown.

(4) The Task Order Direct Labor is that set forth in the matrix in RFP Paragraph L.13.F.1.g.

(5) The Contract Support Personnel are those administrative personnel supporting the overall contract, classified by your established accounting system as direct which might normally be charged to a Management/Administrative task. Contract support labor would be the basis for the Contract Specific Overhead rate [L.13.F.1.g.(2)] and information will not be on Cost Form A in any other context. These are not considered in the matrix in the RFP.

(6) If needed, additional lines may be added under Contract Support.

CONTRACTOR:_____
Systems Analysis and Mission Support (SAMS)
RFP 1-132-RB.0002

COST FORM B

DETAILS OF PRODUCTIVE HOURS AND DIRECT LABOR COSTS

Solicitation 1-132 RB.0002 - Systems Analysis and Mission Support

PROPOSER:_____ Escalation rate applied: _____

Contract Year 2 LABOR CATEGORY	NO. OF POSIT.	PRODUCT-IVE MAN-YEAR	STRAIGHT-TIME HOURS	OVER - TIME HOURS	HOURLY LABOR RATE	STRAIGHT-TIME COST	OVERTIME COST (EXCLUDING PREMIUM)	OVERTIME PREMIUM COST	TOTAL DIRECT LABOR COST
Technical Professional:									
Computer Scientist									
Programmer									
System Analyst									
Engineer									
Project Manager									
Engineer Supervisor									
Operational Aircraft Pilot									
Senior Scientist									
Operational Aircraft Pilot									
Support Personnel:									
Admin Associate									
Project Planner									
Programmer									
Documentarian									
Scheduler/Cost Analyst									
Air Traffic Controller									
Technician:									
Electronic Technician									
Test Assistant									
Designer									
Mechanical Technician									
Test Conductor									
Engineering Associate									
Total Task Order Direct Labor									
Contract Support:									
Contractor Support Total									

INSTRUCTIONS

(1) Annotate with a # any category provided by a subcontractor, in whole or in part. Provide separate Cost Forms for prime and subcontractor information.

(2) Provide formulas (bases and rates) used to derive all dollars shown.

(3) The composition of a composite rate must be shown.

(4) The Task Order Direct Labor is that set forth in the matrix in RFP Paragraph L.13.F.1.g.

(5) The Contract Support Personnel are those administrative personnel supporting the overall contract, classified by your established accounting system as direct which might normally be charged to a Management/Administrative task. Contract support labor would be the basis for the Contract Specific Overhead rate [L.13.F.1.g.(2)] and information will not be on Cost Form A in any other context. These are not considered in the matrix in the RFP.

(6) If needed, additional lines may be added under Contract Support.

CONTRACTOR:_____
Systems Analysis and Mission Support (SAMS)
RFP 1-132-RB.0002

COST FORM B
DETAILS OF PRODUCTIVE HOURS AND DIRECT LABOR COSTS
Solicitation 1-132 RB.0002 - Systems Analysis and Mission Support

PROPOSER:_____ Escalation rate applied: _____

Contract Year 3 LABOR CATEGORY	NO. OF POSIT.	PRODUCT-IVE MAN-YEAR	STRAIGHT-TIME HOURS	OVER - TIME HOURS	HOURLY LABOR RATE	STRAIGHT-TIME COST	OVERTIME COST (EXCLUDING PREMIUM)	OVERTIME PREMIUM COST	TOTAL DIRECT LABOR COST
Technical Professional:									
Computer Scientist									
Programmer									
System Analyst									
Engineer									
Project Manager									
Engineer Supervisor									
Operational Aircraft Pilot									
Senior Scientist									
Operational Aircraft Pilot									
Support Personnel:									
Admin Associate									
Project Planner									
Programmer									
Documentarian									
Scheduler/Cost Analyst									
Air Traffic Controller									
Technician:									
Electronic Technician									
Test Assistant									
Designer									
Mechanical Technician									
Test Conductor									
Engineering Associate									
Total Task Order Direct Labor									
Contract Support:									
Contractor Support Total									

INSTRUCTIONS

(1) Annotate with a # any category provided by a subcontractor, in whole or in part. Provide separate Cost Forms for prime and subcontractor information.

(2) Provide formulas (bases and rates) used to derive all dollars shown.

(3) The composition of a composite rate must be shown.

(4) The Task Order Direct Labor is that set forth in the matrix in RFP Paragraph L.13.F.1.g.

(5) The Contract Support Personnel are those administrative personnel supporting the overall contract, classified by your established accounting system as direct which might normally be charged to a Management/Administrative task. Contract support labor would be the basis for the Contract Specific Overhead rate [L.13.F.1.g.(2)] and information will not be on Cost Form A in any other context. These are not considered in the matrix in the RFP.

(6) If needed, additional lines may be added under Contract Support.

CONTRACTOR:_____
Systems Analysis and Mission Support (SAMS)
RFP 1-132-RB.0002

COST FORM B

DETAILS OF PRODUCTIVE HOURS AND DIRECT LABOR COSTS

Solicitation 1-132 RB.0002 - Systems Analysis and Mission Support

PROPOSER:_____ Escalation rate applied: _____

Contract Year 4 LABOR CATEGORY	NO. OF POSIT.	PRODUCT-IVE MAN-YEAR	STRAIGHT-TIME HOURS	OVER - TIME HOURS	HOURLY LABOR RATE	STRAIGHT-TIME COST	OVERTIME COST (EXCLUDING PREMIUM)	OVERTIME PREMIUM COST	TOTAL DIRECT LABOR COST
Technical Professional:									
Computer Scientist									
Programmer									
System Analyst									
Engineer									
Project Manager									
Engineer Supervisor									
Operational Aircraft Pilot									
Senior Scientist									
Operational Aircraft Pilot									
Support Personnel:									
Admin Associate									
Project Planner									
Programmer									
Documentarian									
Scheduler/Cost Analyst									
Air Traffic Controller									
Technician:									
Electronic Technician									
Test Assistant									
Designer									
Mechanical Technician									
Test Conductor									
Engineering Associate									
Total Task Order Direct Labor									
Contract Support:									
Contractor Support Total									

INSTRUCTIONS

(1) Annotate with a # any category provided by a subcontractor, in whole or in part. Provide separate Cost Forms for prime and subcontractor information.

(2) Provide formulas (bases and rates) used to derive all dollars shown.

(3) The composition of a composite rate must be shown.

(4) The Task Order Direct Labor is that set forth in the matrix in RFP Paragraph L.13.F.1.g.

(5) The Contract Support Personnel are those administrative personnel supporting the overall contract, classified by your established accounting system as direct which might normally be charged to a Management/Administrative task. Contract support labor would be the basis for the Contract Specific Overhead rate [L.13.F.1.g.(2)] and information will not be on Cost Form A in any other context. These are not considered in the matrix in the RFP.

(6) If needed, additional lines may be added under Contract Support.

CONTRACTOR:_____
Systems Analysis and Mission Support (SAMS)
RFP 1-132-RB.0002

COST FORM B

DETAILS OF PRODUCTIVE HOURS AND DIRECT LABOR COSTS

Solicitation 1-132 RB.0002 - Systems Analysis and Mission Support

PROPOSER:_____ Escalation rate applied: _____

Contract Year 5 LABOR CATEGORY	NO. OF POSIT.	PRODUCTIVE MAN-YEAR	STRAIGHT-TIME HOURS	OVER-TIME HOURS	HOURLY LABOR RATE	STRAIGHT-TIME COST	OVERTIME COST (EXCLUDING PREMIUM)	OVERTIME PREMIUM COST	TOTAL DIRECT LABOR COST
Technical Professional:									
Computer Scientist									
Programmer									
System Analyst									
Engineer									
Project Manager									
Engineer Supervisor		—							
Operational Aircraft Pilot									
Senior Scientist									
Operational Aircraft Pilot									
Support Personnel:									
Admin Associate									
Project Planner									
Programmer									
Documentarian									
Scheduler/Cost Analyst									
Air Traffic Controller									
Technician:									
Electronic Technician									
Test Assistant									
Designer									
Mechanical Technician									
Test Conductor									
Engineering Associate									
Total Task Order Direct Labor									
Contract Support:									
Contractor Support Total									

INSTRUCTIONS

(1) Annotate with a # any category provided by a subcontractor, in whole or in part. Provide separate Cost Forms for prime and subcontractor information.

(2) Provide formulas (bases and rates) used to derive all dollars shown.

(3) The composition of a composite rate must be shown.

(4) The Task Order Direct Labor is that set forth in the matrix in RFP Paragraph L.13.F.1.g.

(5) The Contract Support Personnel are those administrative personnel supporting the overall contract, classified by your established accounting system as direct which might normally be charged to a Management/Administrative task. Contract support labor would be the basis for the Contract Specific Overhead rate [L.13.F.1.g.(2)] and information will not be on Cost Form A in any other context. These are not considered in the matrix in the RFP.

(6) If needed, additional lines may be added under Contract Support.

CONTRACTOR:_____

Systems Analysis and Mission Support (SAMS)

RFP 1-132-RB.0002

COST FORM C

DETAILS OF YEAR 1 PAYROLL TAX AND FRINGE BENEFIT COSTS FOR DIRECT LABOR POSITIONS

Solicitation 1-132-RB.0002 -Systems Analysis and Mission Support

LABOR CATEGORY	NO. OF POSIT.	TOTAL	FICA	FUI	SUI	WORKER'S COMP	GENERAL LIABILITY INSURANCE	MEDICAL/ DENTAL INSURANCE	PAID ABSENCE	PENSIONS/ SAVINGS PLANS	OTHER (Note 3)
Technical Professional:											
Computer Scientist											
Programmer											
System Analyst											
Engineer											
Project Manager											
Engineer Supervisor											
Operational Aircraft Pilot											
Senior Scientist											
Operational Aircraft Pilot											
Support Personnel:											
Admin Associate											
Project Planner											
Programmer											
Documentarian											
Scheduler/Cost Analyst											
Air Traffic Controller											
Technician:											
Electronic Technician											
Test Assistant											
Designer											
Mechanical Technician											
Test Conductor											
Engineering Associate											
Total Task Order Direct Labor											
Contract Support:											
Contractor Support Total											

INSTRUCTIONS

(1) Annotate with a # any category provided by a subcontractor, in whole or in part. Provide separate Cost Forms for prime and subcontract data.

(2) Provide formulas (bases and rates) used to derive all dollars shown. Specify if these are estimates or averages from an established total rate.

(3) The composition of a composite rate must be shown

(4) Use "Other" for any payroll tax or fringe benefit not listed. Itemize and explain.

(5) If the "Total" rate does not equal your overhead rate, explain and specify where any additional overhead costs are in your proposal.

(7) Details on this form will be used to support the total compensation plan to be evaluated in Mission Suitability, Subfactor 2, and to verify conformity WD minimum requirements.

(8) IF THESE CALCULATIONS OR RATES DIFFER IN YEARS 2-5, EXPLAIN OR COMPLETE THIS COST FORM FOR THOSE YEARS ALSO.

(9) Use the same labor categories and lines for Cost Form C as for Cost Form B.

(10) Contract Support information will not be shown on Cost Form A except as it is incorporated to establish the Contract Specific Overhead rate.

ATTACHMENT 5

Draft RFP Questions and Answers

QUESTIONS TO THE DRAFT RFP

1-132-RB.1002

IMPORTANT: It is recommended that all offerors carefully review the responses below, as some of them have changed since the latest posting on the SAMS Electronic Bidders Library. The answers set forth below supercede those previously provided.

1. Questions A – B provided below relate to specific ADP Equipment and software requirements under the SAMS procurement. The Government has provided one response at the end of these questions.

A. Does the LaRC intend for the SAMS contractor to provided copies of MacNeal Schwendler NASTRAN and if so: Are the current configurations UNIX or the new NASTRAN for Windows? What release(s) of the software are being used? How many copies/seats are in use? There are other examples of essential but costly S/W packages such as PATRAN and ProE that also fall into this category.

B. Does the LaRC intend for the SAMS contractor to provide the UNIX workstations (SGI, Sun and HP) indicated and if so

i. What model numbers are currently in use?
ii. How many of each model are currently being used?
iii. What operating system releases are being used (IRIX, Solaris, HPUX)?

Answer: No, LaRC does not intend for the SAMS contractor to provide copies of MacNeal Schwendler NASTRAN or other essential but costly software packages such as PATRAN and ProE. Furthermore, LaRC does NOT intend for the SAMS Contractor to provide the UNIX workstations. The software and UNIX workstations will NOT be provided as Government Furnished Property (GFP) for Contractors full-time use; however, access to them will be made available on an as-needed basis per task order in accordance with paragraph D. of G.11, PROVIDING FACILITIES TO CONTRACTORS (LaRC 52.245-90) (AUG 1997).

2. Questions A – F provided below relate to ADP Equipment and software requirements under the SAMS procurement. The Government has provided one response at the end of these questions.

A. ADP Equipment (L.13.F.1.e) - For cost estimating purposes, please provide the quantities and types of ADP equipment and software (both CAD/analysis and PC workstation) that are currently being provided by the Government to the SAERS and ARTS contracts.

B. Paragraph G.11 .C states that contractor supplied ADP equipment and software shall be compatible with the Langley Organization supported. Please provide a list of current ADP equipment and software being used by SAERS and ARTS contractor personnel. We need specific information on types and quantities of computers, software packages and number of users (for costing site licenses), and any other special ADP hardware required. In order to cost the number of printers and other shared peripherals required we need to know how the staff are distributed across the Center (i.e., how many persons can reasonably share a printer or other peripheral device?)

C. Most of the current Task Orders refer to "Government Software for design", "Hardware and software", "personal ground computers", "standard proven software", "Government owned

computers and analysis tools", and "Suns and SGI computers". Will the LaRC Provide a more specific definition of the current hardware and software used to accomplish the required support?

D. Some of the provided Task Orders are not as specific as others. Will the LaRC provide additional information beyond ".....any hardware and software needed....."?

E. Will the LaRC provide an updated list of processing equipment or is that provided in the ARTS contract, Exhibit A, indicative of the hardware currently in use? Some of the model numbers are rather dated compared to those observed during the tour on 25 April 2000.

F. Will the LaRC provide an updated list of processing equipment or is that provided in the SAERS contract, Exhibit A, indicative of the hardware currently in use? Some of the model numbers are rather dated compared to those observed during the tour on 25 April 2000.

Answer: Your attention is directed to Section L, L.13.F.1.e, which states that the Contractor shall supply and maintain automatic data processing (ADP) equipment and software for their use on this contract. The current list of Government Property for both the ARTS and SAERS contracts is now available in the electronic bidders library. This is the best source of information available regarding current hardware requirements. (See Section L.12 for information on the bidders library. The lists are available by contract number under the heading "Miscellaneous"). The Task descriptions are the best source available for current software requirements. All offerors are reminded that specialized hardware, software and test equipment required on a Task Order basis will either be directly charged to the Task Order or may be provided as Government furnished equipment (see L.13.F.1.e). The distribution of current ARTS and SAERS staff across the Center is contained as Attachment 7 to the final RFP.

3. Questions A - C provided below relate to ODIN. The Government has provided one response at the end of these questions.

A. Should ODIN contractor support/equipment be delayed past November 1, 2000 into the contract effective date, can existing workstation equipment be utilized until ODIN support is available?

B. Would the government provide the current ADP required seats by ODIN seat type?

C. RFP L.13.F.1 The second paragraph states that the SAMS contractor may use the Langley ODIN Contractor services for ADP equipment and software. Since the first paragraph states that we must "clearly identify where these costs are considered in their proposal", please provide the Langley ODIN seat costs for equipment anticipated to be used by the SAMS successful offeror. The ODIN web site did not give sufficient information to meet pricing requirements. In the absence of ODIN cost data we suggest that the Government provide a fixed cost for all offerors to propose for ADP equipment and that appropriate revisions to the cost be allowed after the Code R ODIN award is made.

Answer: LaRC does not anticipate any delays in awarding the ODIN contract. All offerors shall propose a reasonable price and be prepared to meet the ADP equipment and software requirements of the SAMS Contract by January 1, 2001. The use of ODIN is not mandatory and is only one of many options to obtain ADP Equipment and software for the SAMS Contract. The LaRC ODIN seat costs are presently unavailable, as a Contractor has not been selected. However, the seat costs from other NASA Centers are publicly available on the website as indicated in L.13.F.1.e of the RFP. The Government does not plan to provide a fixed cost for all offerors to propose ADP equipment, tools and other equipment.

4. Questions A and B provided below relate to font size. The Government has provided one response at the end of these questions.

A. RFP L.13.B.1.(b) - Can a smaller font such as 8 point be used for graphics and tables?

B. RFP L.13.B.2 stipulates that the proposal shall use "not smaller than 12 point type." It is easier to compose, read and evaluate figures and tables prepared using 9-point type. Please indicate the Governments willingness to accept figures and tables prepared using 9-point type?

Answer: 8-point font or higher is acceptable for graphics and tables provided that it is legible. This change will be reflected in the final RFP.

5. Questions A and B provided below relate to Attachment 4 – Cost Forms. The Government has provided one response at the end of these questions.

A. Attachment 4 contains an Excel sheet entitled "Rate Chart." This sheet contains no data. Please provide additional instructions for the purpose of the Rate Chart.

B. Rate Chart -The Rate Chart is void in Excel Workbook. Will it be identical to the one in G.14?

Answer: The sheet entitled "Rate Chart" is there to provide a single place to display all rates, factors, and assumptions that are used in the Cost Form formulas. The use of the "Rate Chart" sheet is optional.

6. Questions A - F provided below relate to provisional fee payments. The Government has provided one response at the end of these questions.

A. Section G.1(f)(1) states that provisional fee payments will not be paid. Sections G.1(f)(2), (3), and (4) appear to describe how provisional fee will be handled. Which is correct?

B. RFP G.1(f)(1) - Provisional award fee payments are normally allowed under NASA contracts. Will the Government reconsider allowing provisional award fee payments under the SAMS contract? For small businesses it is very important to have regular cost and fee payments to meet fiscal obligations. Subparagraphs (2) through (4) which follow ensure that the Government's interests are well protected.

C. Page 13, G.1, AWARD FEE FOR SERVICE CONTRACTS (FAR 1852.216-76) (MAR 1998), (f)(1) and (2) through (4): Paragraph G.1(f)(1) states that provisional award fee payments will not be made under the contract. However, Paragraphs G.1(f)(2) through (4) describe the process by which provisional award fee payments will be made. Please clarify the Government's intent as it relates to provisional award fee payments.

D. LaRC has requested bidder ideas for provisional fee payment. We offer the following as one approach. An initial award fee pool could be established at the beginning of the evaluation period. Provisional fee would be paid monthly at a rate of 85%. At the end of the period, the fee pool would be adjusted to reflect the new Task Orders that were issued (per G.1.(e)). Award fee earned would be determined using the final award fee pool. Award fee payments would be made in accordance with RFP Section G.1.(f) (2).

E. G.1, Award Fee - (f)(1) reading "Provisional award fee payments will not be made under this contract:" This clause appears to contradict paragraphs (d) and (f)(2) through (f)(4) that describe the procedure for making provisional payments. Please review and comment.

F. We propose that LaRC pay 70% of the award fee monthly based on task costs during that month period. The award fee should be adjusted up (or down) every six months after the award fee performance evaluation and award fee determination. The protection devices stipulated by the FAR clause cited in the Draft RFP (FAR 1852.216-76) should be implemented for LaRC's benefit. We believe this is the most fair approach for ourselves and LaRC.

Answer: NASA FAR Supplement Clause 1852.216-76, Award Fee for Service Contracts, does NOT permit provisional fee payments prior to the first award fee determination. The Government may consider making provisional award fee payments after the first award fee determination based on the magnitude of the fee pool and the score awarded by the Fee Determination Official for the first award fee period.

7. Questions A - D provided below relate to Section L.13, Proposal Preparation and Submission – Special Instructions, and Section M – Evaluation Factors for Award. The Government has provided one response at the end of these questions.

A. Please elaborate on - Volume I, Subfactor 1 Section L instructions to correlate the offeror's and subcontractor's expertise to each of the broad functional areas in the SOW ?

B. Please elaborate on (or better distinguish between) Volume I, Subfactor 2 Section L (3rd paragraph) instructions to describe the capabilities and depth of the offeror's organization (including subcontractors) for efficiently and effectively performing the contract effort?

C. Please elaborate on (or better distinguish between) - Business Volume, Factor 3, Past Performance requirements relative to related performance on other Contracts?

D. Subfactor 1 – Understanding the Requirements - This paragraph states that "The offeror's correlation of his expertise and that of significant subcontractors or teaming partners in each of the broad functional areas of the Statement of Work will be evaluated." Please clarify what is meant by "correlation of expertise".

Answer: After further review of the instructions contained in Section L.13 and the evaluation factors contained in Section M, of the RFP, LaRC feels there is sufficient detail for offerors to provide an adequate response to the areas in question.

8. Questions A and B provided below relate to Aircraft Systems Maintenance and Operations. The Government has provided one response at the end of these questions.

A. RFP C.1 Statement of Work – Paragraph 4.3 Although the paragraph heading is titled Aircraft and Aircraft Systems Maintenance and Operations, the following paragraphs do not specify the requirement for typical aircraft maintenance. Are the aircraft in the Langley fleet going to be maintained under the SAMS effort?

B. Are the aircraft maintenance requirements still a part of SAMS?

Answer: The aircraft maintenance requirements are not a part of SAMS. These requirements will be fulfilled via another contract vehicle. The title of SOW paragraph 4.3 will be revised in the final RFP.

9. Questions A and B provided below relate to Exhibit E - Award Fee. The Government has provided one response at the end of these questions.

A. Exhibit E - Award Fee, Under Cost Analysis No. 1 there is the statement "If this percentage of tasks falls below 61 then the numerical score will be zero for Cost Analysis 1." Question: Of the 25% allotted for cost evaluation how much is for Cost Analysis No 1 and how much is for Cost Analysis No 2?

B. RFP Exhibit E, Draft Award Fee Plan Part III.C (Cost Analysis No. 1)
This paragraph seems to have a wording problem. It is stated that if the percentage of tasks having Task Order Actual Costs that fall below 105% of the Task Order Planned Costs falls below 61% of tasks then the Award Fee score will be 0. It would appear that it is desirable for task costs to fall below 105% of the Task Order Planned Cost. Please clarify the wording and intent of this paragraph.

Answer: Both Cost Analysis (#1 and #2) as defined in the Award Fee Plan will be used as data points to assist the Award Fee Evaluation Board (AFEB) in the evaluation of the Cost Factor. The final score, however, will be determined by an subjective assessment of the Board. The last sentence under **Cost Analysis No. 1** which reads: "If the percentage of Tasks falls below 61 than the numerical score will be zero(0) for Cost Analysis 1," will be deleted from the Award Fee plan in the final RFP.

10. Questions A and B provided below relate to Section L.13.F.1 – Cost/Price. The Government has provided one response at the end of these questions.

A. Should rows for each subcategory classification (I - V) be added so as to provide the detail of Year 1 Payroll Tax and Fringe Benefit costs for each direct labor position?

B. Cost Form B - This format provides for one category level per direct labor classification. Should rows for each subcategory classification (I - V) be added so as to provide the detail of productive hours and direct labor cost for each category classification?

Answer: The Cost Forms should reflect the weighted composite hourly labor rates and total category hours. Your spreadsheet must show how each rate was derived. There must be sufficient detail for the Government to evaluate the subcategory I-V labor rates, and verify the hours to the RFP.

11. Questions A and B provided below relate to Research Test Pilots. The Government has provided one response at the end of these questions.

A. The Research Test Pilots referenced in Exhibit G, Direct Labor Classification Descriptions is not mentioned in the SOW.

B. Subject S.O.W. para 4.3 states a requirement for BE-200 (King Air) pilots and B-757 co-pilots yet para. L.13.F.1.g does not show labor hours for these individuals unless they are under the Research Test Pilot classification. Can you clarify how many of each type pilot are required? Also can you clarify the response time allowed from notification to need for the "on-call" B-757 co-pilots?

Answer: The required pilots for the BE-200 (King Air) and B-757 are now included in the Task Order Labor Matrix (see L.13.F.1.g) as "Operational Aircraft Pilots". The requirement for the "Research Test Pilots" no longer exists and will be deleted from the matrix. Response times will generally be within 24 to 48 hours; however, specific response times will be defined in individual task orders.

12. Questions A and B provided below relate to "LaRC-NET." The Government has provided one response at the end of these questions.

A. Will the LaRC provide ODIN NAD, LAN1, LAN2 or LAN3 (ODIN network, Ethernet, Fast Ethernet and or ATM) or LaRC LAN/WAN connectivity for SAMS contractor supplied ADP equipment in unclassified environments?

B. Will the LaRC provide NAD, LAN1, LAN2 or LAN3 (ODIN network, Ethernet, Fast Ethernet and or ATM) or LaRC LAN/WAN connectivity for SAMS contractor supplied ADP equipment in classified environments?

Answer: Offerors are referred to L.13.D which states that "NASA LaRC will provide all connections to LaRC-NET." The Contractor is responsible for providing compatible Ethernet cards and software to connect to the LaRC-provided lines. The final RFP will be revised to include this additional information.

13. Questions A and B provided below relate to total compensation plans. The Government has provided one response at the end of these questions.

A. Under Technical Proposal, Subfactor 2 - Management and Staffing, the 6th paragraph thereunder reads "The offerors shall submit a total compensation plan as required by FAR 52.222-46 and NFS 1852.231-71 for both the prime and subcontractors. The offeror should ensure that all the information required by these clauses is included in the plan." This information includes salary and benefit data and should be included under Factor 2 - Cost/Price - of the Business Proposal requirements.

B. Will the compensation plan required under Subfactor 2 be counted in the 75 page limitation?

Answer: The total compensation plan for both prime and significant subcontractors shall be submitted with your Technical Proposal - Volume I and will be subject to the 75 page limitation.

14. Questions A and B provided below relate to Past Performance. The Government has provided one response at the end of these questions.

A. Given the Amendment 2 instruction to deliver Past Performance on 6/5, will there be instructions for a separate Past Performance Volume in the final RFP? Can you release in a formal Answer on the web site the page limitations, contents, and formats required for the Past Performance submittal on 6/5 prior to release of the final RFP to facilitate meeting this schedule?

B. Factor 3 - Past Performance should be moved from the Business Proposal and included under the Technical Proposal.

Answer: Factor 3 - Past Performance will now be submitted as Volume III. This change will be reflected in the final RFP. Volume III will be requested to be submitted 2-weeks in advance of the final proposal due date, not necessarily on June 6, 2000.

15. Questions A and B provided below relate to the Task Orders contained in the Electronic Bidders Library. The Government has provided one response at the end of these questions.

A. SAERS Task Orders – With respect to the 70 Task orders provided, six are current per their completion date.

B. ARTS Task Orders – With respect to the 11 Task Orders provided, six are active Task Orders per their completion date.

Answer: Additional Task Orders have been added to the Electronic Bidders Library. The Bidders Library only contains the original Task Orders and not the modifications to Task Orders, as the information contained therein is adequate to define the general scope of work at LaRC.

16. Questions A - C provided below relate to Cost Forms A, B, and C. The Government has provided one response at the end of these questions.

A. Reference: Cost Form A - If costs associated with planning, estimating and negotiating Task Orders is included in an estimated indirect rate, are "Contract Support Labor Hours" and "Contract Support Labor Costs" lines to be set to zero?

B. Reference: Cost Form B If costs associated with planning, estimating and negotiating Task Orders is included in an estimated indirect rate, is the "Contract Support" lines to be left void?

C. Reference: Cost Form C If costs associated with planning, estimating and negotiating Task Orders is included in an estimated indirect rate, is the "Contract Support" lines to be left void?

Answer: Cost Forms A, B, C contained as Attachment 4 to the final RFP have been revised.

17. Questions A and B provided below relate to cost and staffing data for the Representative Task Orders. The Government has provided one response at the end of these questions.

A. Can the required cost and staffing data for the Representative Task Orders be submitted in the Business Volume (Volume II), or are these data required in the Technical Proposal and subject to the 75 page limit?

B. Under Technical Proposal, Subfactor 1 - Understanding the Requirements, the third paragraph includes the following requirement: "The offeror shall propose a cost estimate (labor, equipment, facilities and materials) for the Prime and Subcontract effort, including appropriate indirect costs (Overhead and G&A), for each representative task order. The offeror shall include the anticipated monthly spending profile for each representative task order." We believe that only technical and management information should be included in the Technical Proposal. We recommend that this cost and pricing information should be included under Factor 2 - Cost/Price - of the Business Proposal requirements.

Answer: The required cost and staffing data for the Representative Task Orders must be submitted with Technical Proposal – Volume I and will be subject to the 75 page limitation.

18. Can Government provided equipment be utilized during contract phase-in to minimize work interruption?

Answer: A 60-day phase-in period is planned; however, the actual work on Task Orders will not begin until January 1, 2001. The incumbent Contractor will continue to use the Government equipment during the phase-in period. The new Contractor will not perform Task Orders during the phase-in period. Consequently, no ADP equipment will be needed during this period for task performance.

19. Section H.3 requires work performance (work hours/hours of work) to be consistent with the Government. Does this extend to Government holidays as well?

Answer: Yes. Offerors are referred to Section I, NASA FAR Supplement clause 1852.242-72, Observance of Legal Holidays – Alternate I for information regarding Government Holidays.

20. Our interpretation of Section I.6 is that overtime is allowable under the specified circumstances, but that the Government must approve all overtime. Is this correct?

Answer: No, overtime is permitted without Government approval in the circumstances stated in paragraph (a)1 through (a)4 of FAR 52.222-2, Payment of Overtime Premiums.

21. Is the letter from the Offeror committing to an ISO-9001 compliance schedule included in the Volume I page limit?

Answer: The letter is not included in the Volume I page limitation. This change will be reflected in the final RFP.

22. Section D of the Draft RFP appears to be missing. Was this section intentionally omitted?

Answer: Section D was intentionally omitted as there are no clauses from that Section applicable to this procurement.

23. Under the two current contracts, on-site office space is made available for Program Management personnel. Does the government intend to make space available for SAMS Program Management?

Answer: The Government intends to make space available for the SAMS Program Management.

24. Please consider including hub-zone requirements into the contract.

Answer: In accordance with FAR Part 19, Hub-Zone requirements are not applicable to procurements set-aside for small businesses.

25. Is there a moratorium on contractor visits/discussion about SAMS? Will the blackout coincide with the RFP release?

Answer: The official Communications Blackout coincides with the final RFP release.

26. RFP B.3 Award Fee - We recommend that the Government specify the award fee percentage, within the range of 8-10%, for all offerors to propose rather than have each offeror set their own fee percentage. Since the award fee is the Government's primary means of rewarding or encouraging improvements in performance we believe that it is in the Government's best interest to make sure that the percentage is large enough to warrant substantial attention from the contractor. If an offeror proposes a low award fee percentage their interest in performing to meet award fee evaluation criteria and their corporate interest in the SAMS contract are likely to be less than a contractor whose potential earned award fee is more substantial. Allowing an offeror to propose a low award fee percentage could result in a cost discriminator which would in fact have a negative impact on performance after contract award and defeat the purpose of the source selection process- providing the best contract service possible to SAMS contract users.

Answer: The Government will not specify an award fee percentage for this competition.

27. RFP Statement of Work 9.0, Electronic Task Order System

a.) Is there an existing Electronic Task Order System which was funded by the Government for contractor use? If so, will information be provided regarding its capabilities, interfaces, and hardware/software platform requirements?

b.) Will the Government provide information regarding the interfaces (hardware, software) with which the Electronic Task Order System must be compatible?

Answer: There is not an existing Electronic Task Order System. There are no existing hardware/software platform requirements. Expected interfaces will be PC, MAC, and UNIX based systems.

28. RFP G.14 - Are the labor rates provided in the tables to be direct labor rates, loaded through G&A, or loaded through award fee? L13.G. specifies direct labor rates and associated indirect rates.

Answer: The labor rates in G.14 (G.13 of the Final RFP) are NOT to be loaded through G&A or award fee. The Indirect rates should be specified separately as shown on the chart.

29. RFP G.14 - Please clarify the difference between Project Planner and Scheduler/Cost Analyst. It is our understanding that Project Planner and Scheduler are often synonymous with each other at Langley.

Answer: The definitions of these support personnel are provided in Exhibit G to the RFP.

30. RFP I.1 .B - Are paragraphs (e) and (f) included in Clause 1852.242-72?

Answer: NASA FAR Supplement Clause 1852.242-72, Observance of Legal Holidays, will be revised to include Alternate II in the final the RFP.

31. RFP I.13, Security Classification Requirements (NASA 1852.204-75) (SEP 1989) Our company already possesses Top Secret facility and personal clearances. Will we be required to establish our own Top Secret facility clearance at Langley? If not, will the Government provide the Top Secret facility for storage and use of classified materials?

Answer: A Langley unique Top Secret facility clearance is not required. All storage and use of classified materials will be done by NASA Langley. See Exhibit A.

32. RFP Exhibit A, DD 254 and Exhibit B, Contract Documentation Requirements. The DD 254 specifies Operations Security requirements, but the Exhibit B, the contract documentation requirements, does not specify an OPSEC Plan. Should an OPSEC Plan be added as a contract deliverable?

Answer: An OPSEC Plan is not required. The DD254 will be updated and included in the final RFP.

33. RFP Exhibit B, Contract Documentation Requirements, and Exhibit E, Draft Award Fee Evaluation Plan Exhibit B specifies the Self Assessment Report be delivered 30 calendar days after completion of the evaluation period. Exhibit E specifies the Self Assessment Report be delivered 25 days after the end of the period. Which is correct?

Answer: The self assessment report shall be delivered 25 days after the end of each evaluation period. This change will be reflected in the final RFP.

34. RFP L.13.E - Technical Proposal Volume I:

(a) The DRFP does not require resumes for proposed Key Personnel. Is this intentional? If resumes are desired are they to be included in the Volume I 75-page limitation? Will the Government specify the desired contents of the resumes?

(b) Will key personnel resumes be evaluated? If so, please provide the evaluation criteria in Section M of the final RFP.

Answer: The Government will not evaluate resumes or key personnel as part of this procurement.

35. RFP L.13.E.1.b, Subfactor 2 – Management and Staffing - The first paragraph states that contract award is 1 November 2000 and contract effective date is 1 January 2001. To clarify, does this mean a 60 day transition overlapping the incumbent contractors' performance?

Answer: A 60-day phase-in period is planned; however, the actual work on Task Orders will not begin until January 1, 2001.

36. RFP L.13.E.1.b Subfactor 2 – Management and Staffing - Since our Quality System Manual and associated procedures already address our approaches to contract and task management as well as other administrative functions, and they will be provided as attachments to Volume I, can they be incorporated by reference into our response to this subfactor?

Answer: No, an official response to this subfactor is required within the 75-page limitation.

37. RFP L.13.F.1.3.e and G.12.C - These paragraphs state that offerors are to propose ADP equipment, general purpose equipment, machine tools and vehicles for the entire contract. We are concerned that the requirement to provide ADP and other equipment gives the incumbent contractors an unfair competitive advantage. Since they are allowed to purchase such equipment under their current contracts (as direct or indirect costs) they can reduce their proposed SAMS indirect costs by purchasing large numbers of computers now and then not proposing such costs in their SAMS offers. It is our understanding that at least one of the incumbents is in fact doing this. We strongly recommend the Government provide a fixed cost for all offerors to propose for ADP equipment, tools and other equipment to ensure that the incumbents do not have a competitive cost advantage.

Answer: Both the ARTS and SAERS contracts include a clause entitled "Providing Facilities to Contractors". The clause in the ARTS contracts states that "...the Government will provide existing facilities, and ...will replace damaged or obsolete equipment for on-site use only." Considering that almost all of the ARTS work is performed on-site at LaRC, most equipment on the ART contract is therefore provided by the Government. The SAERS contract states that "...the Government will provide existing facilities...for use on-site at Langley Research Center. In addition, it states "...that facilities that reach the end of their useful life during the contract period, or which are beyond economical repair, will not be replaced by the Government...and must be replaced by the Contractor." Therefore, the SAERS Contractor is authorized and required to provide some equipment and to charge it to the contract in accordance with its approved accounting system. Since this is consistent with Government policy expressed in FAR 45.102, no unfair incumbent advantage exists. In summary, the Government will not provide a fixed cost for ADP equipment, tools and other equipment.

38. Cost Form C - Since many companies hold their benefits costs as proprietary information, is a note referencing their disclosed cost proposal acceptable to comply with Note 1?

Answer: Reference RFP Section L, paragraph L.13.F.1.c, subcontractors may submit proprietary cost information directly to the Government. Cost Form C, Note 1, requires that subcontracted categories be

annotated. Although submitted separately, subcontracted and prime costs together, would completely support all cost elements.

39. It is not possible to provide fixed numbers for the costs associated with some components of the fringe portion of an overhead pool since there are many variable elements such as:

(1) the company contribution to many 401(k) and "company pension plans" is a function of the employee's contribution.
(2) the amount of paid absence for all positions (Wage Determination included) is a function of service time.
(3) Civic Duty (Military, Jury) time is an overhead component and highly variable.

Is it acceptable to use averages used to establish Forward Pricing Rates Agreements for such variable quantities?

Answer: These elements are a part of your Defense Contract Audit Agency (DCAA) approved indirect rates. They are not expected to be derived separately and an average rate is acceptable.

40. Are the formulas requested in Note 2 to be annotated as text on the spreadsheet as well as explained in the text of the Business Proposal?

Answer: Formulas in spreadsheets should be self explanatory and supported by rationale in the text of the Business Proposal.

41. Is an overhead cost element sheet used for justification for a FPRA acceptable to Comply with Note 4 for the "Other" elements since that is a required element of the Business Proposal? Or, should columns be added that sum into the "Other" column?

Answer: An explanation of elements in "Other" is adequate. Additional columns are not a requirement.

42. Will the SAMS contractor be responsible for hardware required to produce and process E-size drawings in support of the SE Competency and their customers?

Answer: The SAMS Contractor will be responsible for hardware required to produce and process E-size drawings in support of the Systems Engineering (SE) Competency and their customers.

43. REFERENCE: GENERAL ARE THERE ANY COLLECTIVE BARGAINING OR UNION AGREEMENTS IN PLACE WITHIN THE SAMS SOW?

Answer: There are no collective bargaining or union agreements in place within the SAMS SOW.

44. I would like to find out if you have any papers/reports published in the area of heat flux prediction in hypersonic flow with jet injection, and comparisons with data. I do have a number of your papers on hypersonic flow with pressure and heat flux prediction in the absence of secondary flow. I also have adequate literature on surface pressure data with jet injection in supersonic/hypersonic flow, but find no papers dealing with heat flux prediction/measurement with jet injection. Please advise me on this matter, and mail me some of your papers in this area if any.

Answer: It is the responsibility of the potential offerors to research and obtain this information.

45. The announced turnaround time for proposal preparation was 30 days. Given the breadth of the SOW and the five sample tasks, this response time puts the teams containing current incumbents (probably two teams) at an advantage given years of responding to similar tasks. Will LaRC provide a 60

day interval between RFP release and proposal delivery to allow teams without this direct experience time to realistically research and assess staffing and management approaches to the SOW and sample tasks?

Answer: Given the fact the Draft RFP was released on April 13, 2000, a 30-day response time between final RFP release and proposal receipt is considered sufficient.

46. Section L, Subfactor 1, 3rd paragraph requires that the offeror propose a cost estimate for each representative Task Order that includes "labor, equipment, facilities, and material for the prime and subcontracted effort." Section G. 12 states that the contractor must provide the facilities (e.g. general purpose equipment, machine tools, test equipment, and vehicles) required to satisfy the requirements of the contract. Please clarify the type of equipment and facilities that should be included in these cost estimates.

Answer: All equipment required to complete the representative task orders shall be included in the cost of completing the Task Orders. The costs shall be distributed and provided in accordance with your accounting system.

47. Will the government provided facilities (e.g. ADP, general purpose off-the-shelf equipment, machine tools, test equipment) that are currently used by the incumbent contractors be made available for purchase by the successful SAMS contractor.

Answer: No, the Government provided facilities that are currently used by the incumbent Contractors are classified as Installation Accountable Property and do not meet the criteria defined in FAR Part 45.6 for Contractors to purchase the property.

48. It is recommended that staffing requirements be presented in man-years instead of hours with steps taken to normalize the competitor's man-years in the evaluation. This eliminates the need to evaluate uncompensated overtime for exempt salaried employees and should provide a more appropriate and realistic evaluation.

Answer: Uncompensated Overtime can impact the number of full-time equivalent man-years as well as the number of man-hours. In order to conduct an evaluation of cost, the Government needs all offerors to propose to the hours provided in the Task Order Labor Matrix in accordance with the pricing instructions contained in L.13.F of the RFP. See FAR 52.237-10

49. It is requested that LaRC consider a "Special Emphasis" category for award fee determinations. As an added incentive, all unearned fee should be rolled over into a separate pool. Once a year the FDO should award all or part of this pool to recognize particularly significant and worth accomplishments. These should include exceptional management and technical excellence, ingenuity in responding to unusual technical challenges, successfully dealing with unforeseen increases or decreases in workload, exceptional safety initiatives, and prompt response to suggestions for improvement.

Answer: In accordance NASA FAR Supplement 1816.405-273, Award Fee Evaluations, unearned award fee in any given period in a service contract is lost, and shall not be carried forward, or "rolled-over," into subsequent periods.

50. H.11 Year 2000 Compliance: This clause is no longer applicable and should be deleted.

Answer: In accordance with policy from NASA Headquarters, the Year 2000 Compliance clause is still applicable and will remain in the RFP.

51. Clause 52.216-7 (Allowable Cost and Payment) should be replaced with the current clause dated February 2000.

Answer: The March 2000 version of FAR Clause 52.216-7 will be included in the final RFP.

52. Except for a reference in the standard FAR clause 52.215-1 (L.3), stating the "Government reserves the right to make multiple awards," there is no statement of intent with regard to making multiple awards. Further there is no mention of procedures for ordering when multiple awards are planned. Is it correct to presume that the agency plans to make a single award?

Answer: NASA LaRC intends to make a single award.

53. Subfactor 3 - Cost Realism - found under the Technical Proposal, should be moved to the Business Proposal Factor - Cost/Price.

Answer: In accordance with NASA FAR Supplement 1815.304-70(b)(4), Subfactor 3 - Cost Realism will remain as part of Volume I – Technical Proposal.

54. Pages 16, 19, & 89, deal with GFE, Contractor supplied ADP equipment and software, and ODIN possibilities, but we would appreciate a statement of NASA's expectations. In particular, what will be the status of GFE currently in the possession of the incumbent contractors?

Answer: GFE in the possession of the current Contractors will not be made available under the SAMS procurement. The nature and magnitude of ADP equipment and software that is currently being provided by the Government can be determined by reviewing the information contained in the Bidders Library.

ATTACHMENT 6

Langley Management Procedures (LMS)
Referenced in the Representative Task Orders
(See PDF File)

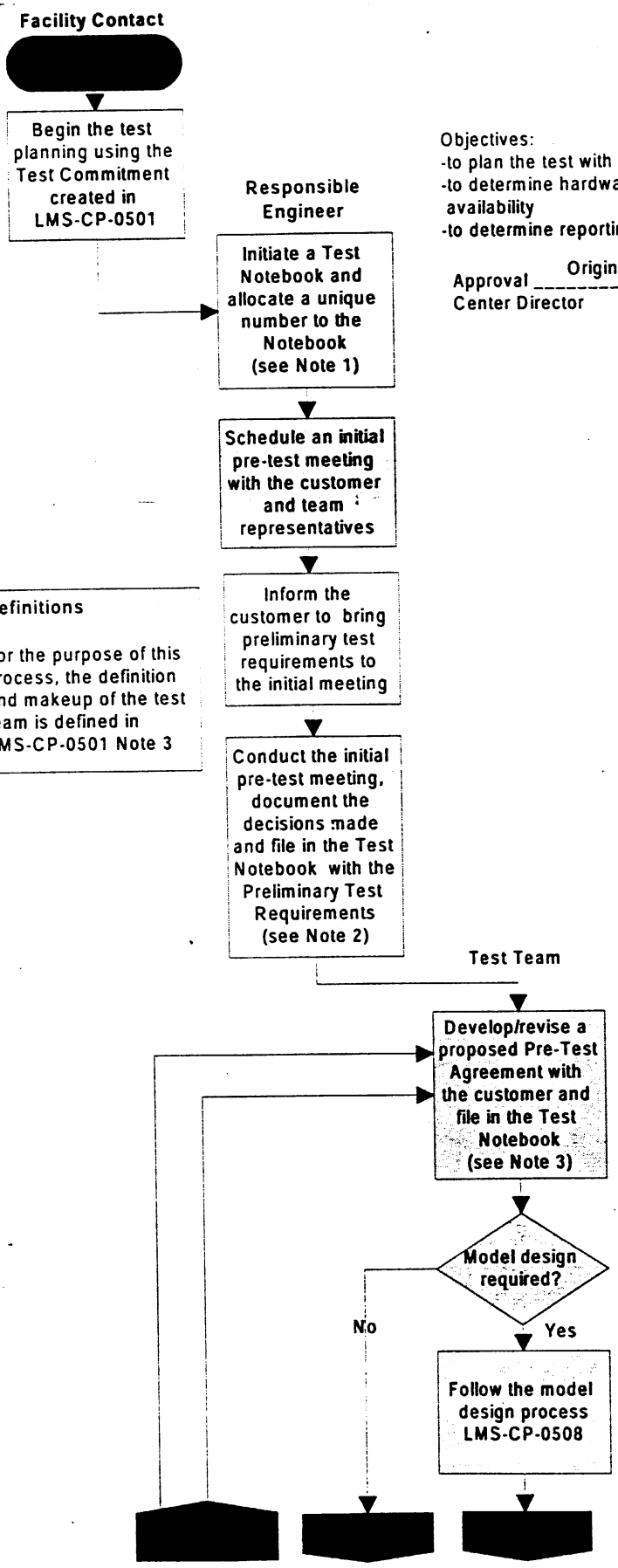
SAMPLE

WIND TUNNEL TEST PLANNING

LMS-CP-0502
Revision: A

Objectives:
-to plan the test with the customer's involvement
-to determine hardware, software, facilities and workforce requirements and availability
-to determine reporting requirements with the customer

Approval Original signed by J. F. Creedon
Center Director



Definitions

For the purpose of this process, the definition and makeup of the test team is defined in LMS-CP-0501 Note 3

Note 1

A Test Notebook can be either hard copy of electronic. It is the responsibility of the Responsible Engineer to record and maintain pertinent test information throughout the testing period. See Appendix A for a list of required sections to be included in the Test Notebook.

All wind tunnel test team personnel will have access to the Test Notebook for the duration of the test. Upon completion of the test the Test Notebook will be retained following the requirements given in the Aerodynamics, Aerothermodynamics, and Acoustics Competency (AAAC) Record Form.

Note 2

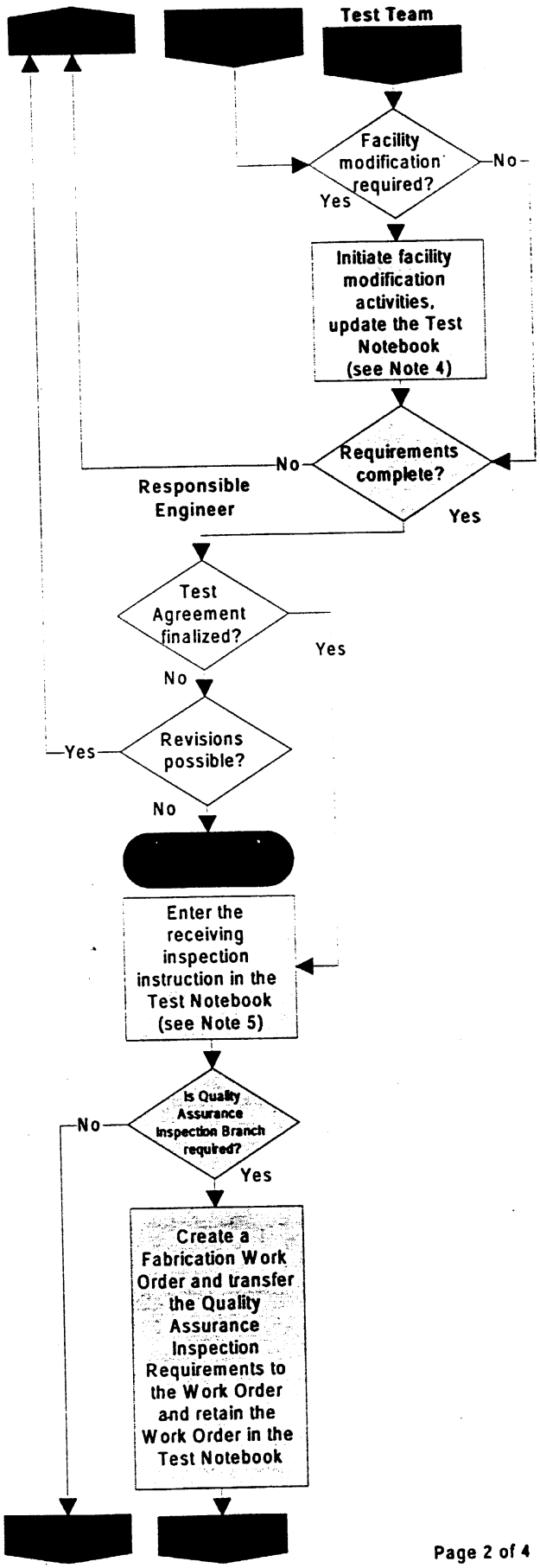
Items to be discussed at the initial meeting:

-Preliminary test requirements
-Schedule
-Availability of team members
-LAPG 1710.15 (model systems criteria)
-Archiving and reporting requirements

Note 3

All Pre-Test Agreements must make reference to:

-Finalized Test Requirements
-Model or instrumentation design requirements
-Scheduled test facility entry
-Measurement requirements
-Data requirements
-Facility requirements
-Resource requirements
-Fabrication quality assurance inspections
-Receiving inspections
-Reporting Requirements
-Packing and Shipping Requirements for returning model to the customer



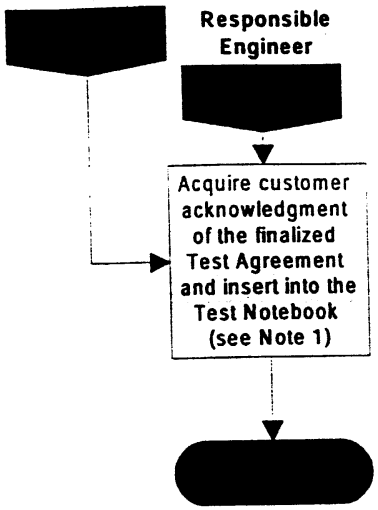
Note 4

Use procedure LMS-CP-5620 for modifications which may have an impact on structural integrity of the facility.

Minor modifications which will not impact structural integrity are performed by the test team.

Note 5

Use procedure LMS-CP-2740 to perform receiving inspection on models received directly from an owner external to NASA


Responsible Engineer
Acquire customer acknowledgment of the finalized Test Agreement and insert into the Test Notebook (see Note 1)

Wind Tunnel Test Notebook Index

The following sections are required to be shown in the Test Notebook. For any test that does not require a given section, indicate N/A under that heading.

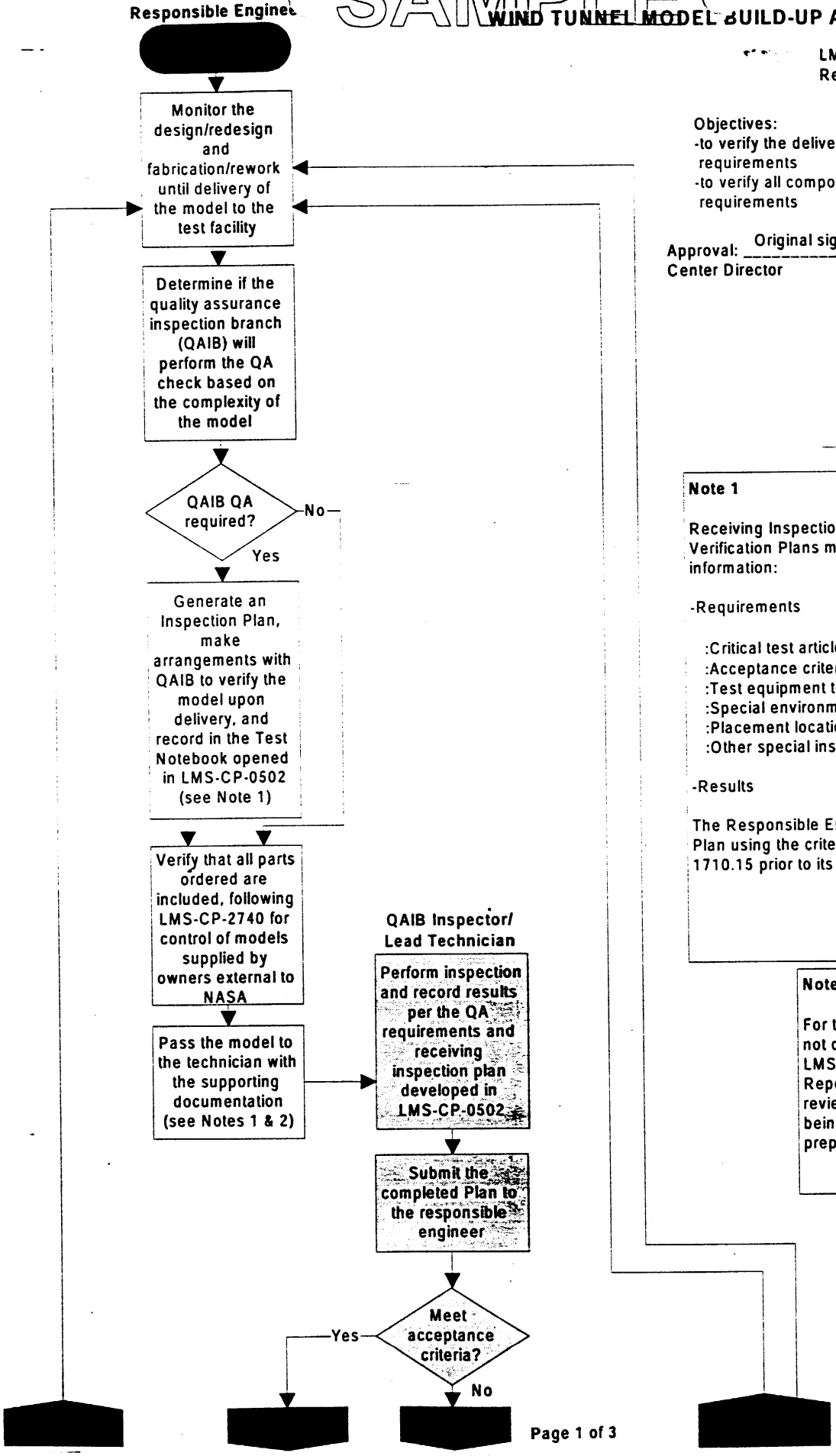
-Test Team Leader(s)
-Test Notebook Number
-Scheduled Entry Date
-Preliminary Test Requirements
-Notes or Minutes from Pre-Test Meetings
-Final Test Requirements and Agreement acknowledged by the Customer
-Test Team Roster to include Job Title and Organization Affiliation
-Data Collection Method
-Data Reduction Method
-Data Distribution Method
-Data Archival Method
-Facility Modification Requirements and Drawings
-Quality Assurance Requirements
-List of Fabrication Drawings
-Quality Assurance Results
-Problem log to include date and disposition of article or test
-Model Stress Report and Review Status
-Test Article Delivery
-Authorizing Official's Signature for Wind-On testing
-Test extension request(s) and disposition to include date and requesting party
-Lessons Learned
-Test Results and identification of file containing test results
-Commercialization Technology Recommendation

WIND TUNNEL MODEL BUILD-UP AND INSTALLATION

LMS-CP-0503
Revision: A

Objectives:
-to verify the delivered system meets the requirements
-to verify all components of the system meet requirements

Approval: Original signed by J. F. Creedon
Center Director



Note 1

Receiving Inspection or Dimensional Verification Plans must contain the following information:

-Requirements

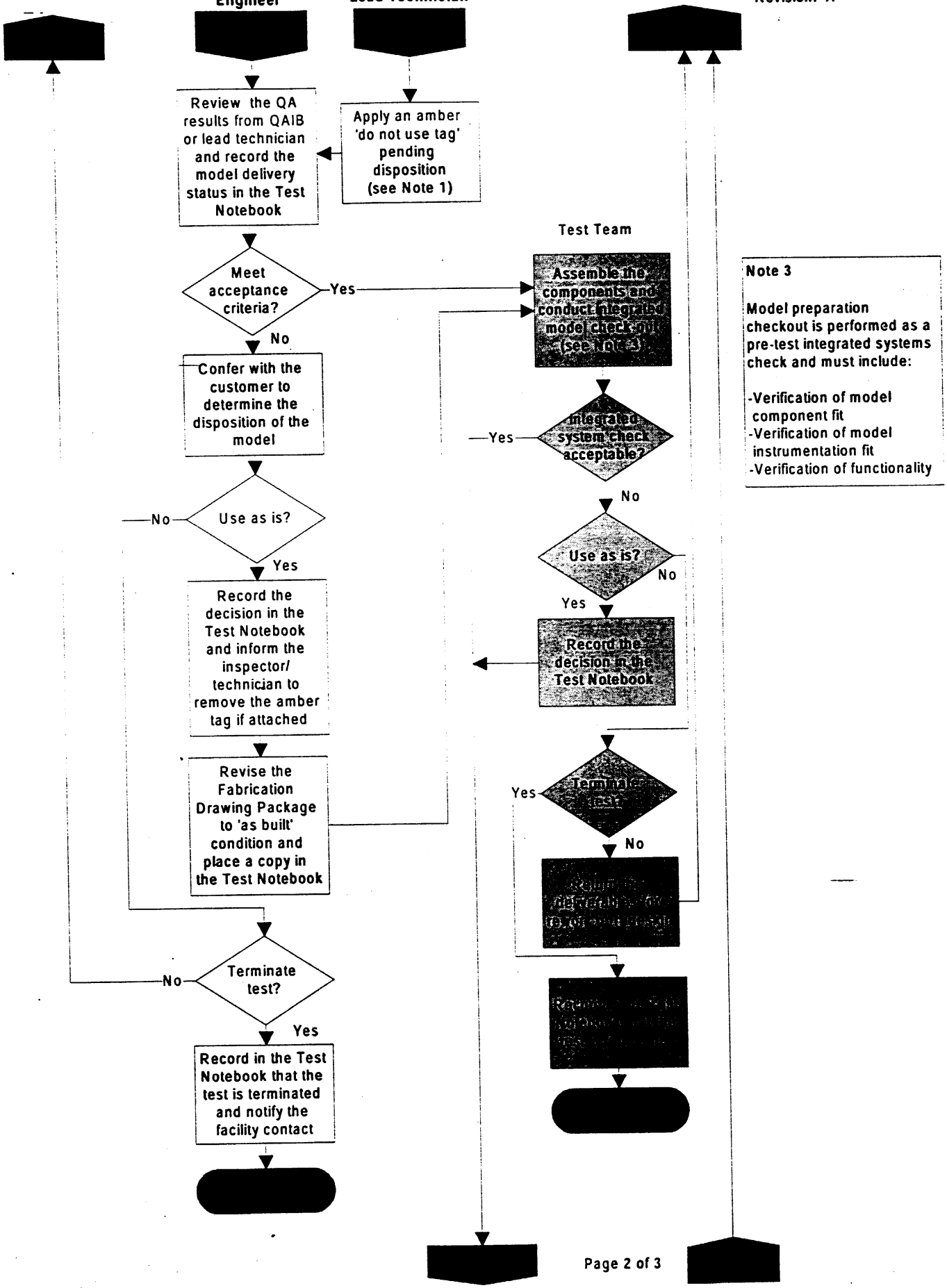
:Critical test article dimensions
:Acceptance criteria
:Test equipment to be used
:Special environmental instructions
:Placement location of "Do Not Use" tag
:Other special instructions

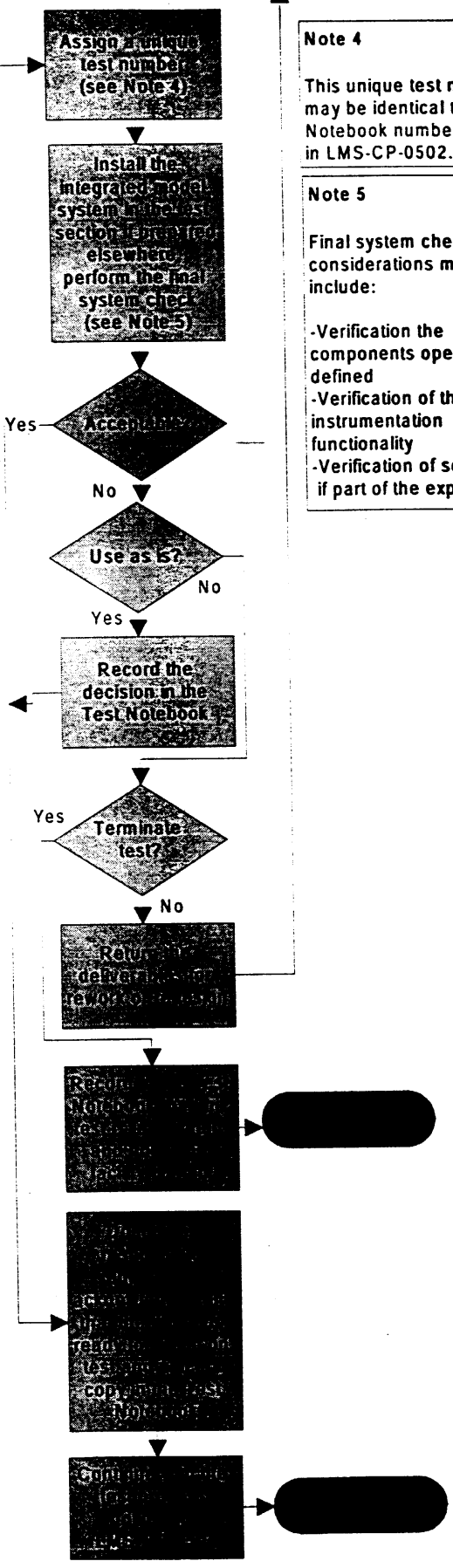
-Results

The Responsible Engineer must approve the Plan using the criteria listed in LAPG 1710.15 prior to its release

Note 2

For tests which use a model not designed/fabricated using LMS-CP-0508, a Model Stress Report must be obtained and reviewed prior to the model being placed in the model preparation area


Responsible Engineer
QAIB Inspector/ Lead Technician
Review the QA results from QAIB or lead technician and record the model delivery status in the Test Notebook
Apply an amber 'do not use tag' pending disposition (see Note 1)
Meet acceptance criteria?
Yes
No
Confer with the customer to determine the disposition of the model
Use as is?
No
Yes
Record the decision in the Test Notebook and inform the inspector/ technician to remove the amber tag if attached
Revise the Fabrication Drawing Package to 'as built' condition and place a copy in the Test Notebook
Terminate test?
No
Yes
Record in the Test Notebook that the test is terminated and notify the facility contact
Test Team
Assemble the components and conduct integrated model check-out (see Note 3)
Integrated system check acceptable?
Yes
No
Use as is?
No
Yes
Record the decision in the Test Notebook
Terminate test?
Yes
No
Note 3
Model preparation checkout is performed as a pre-test integrated systems check and must include:
-Verification of model component fit
-Verification of model instrumentation fit
-Verification of functionality



Note 4

This unique test number may be identical to the Test Notebook number assigned in LMS-CP-0502.

Note 5

Final system check considerations must include:

-Verification the components operate as defined
-Verification of the instrumentation functionality
-Verification of software if part of the experiment

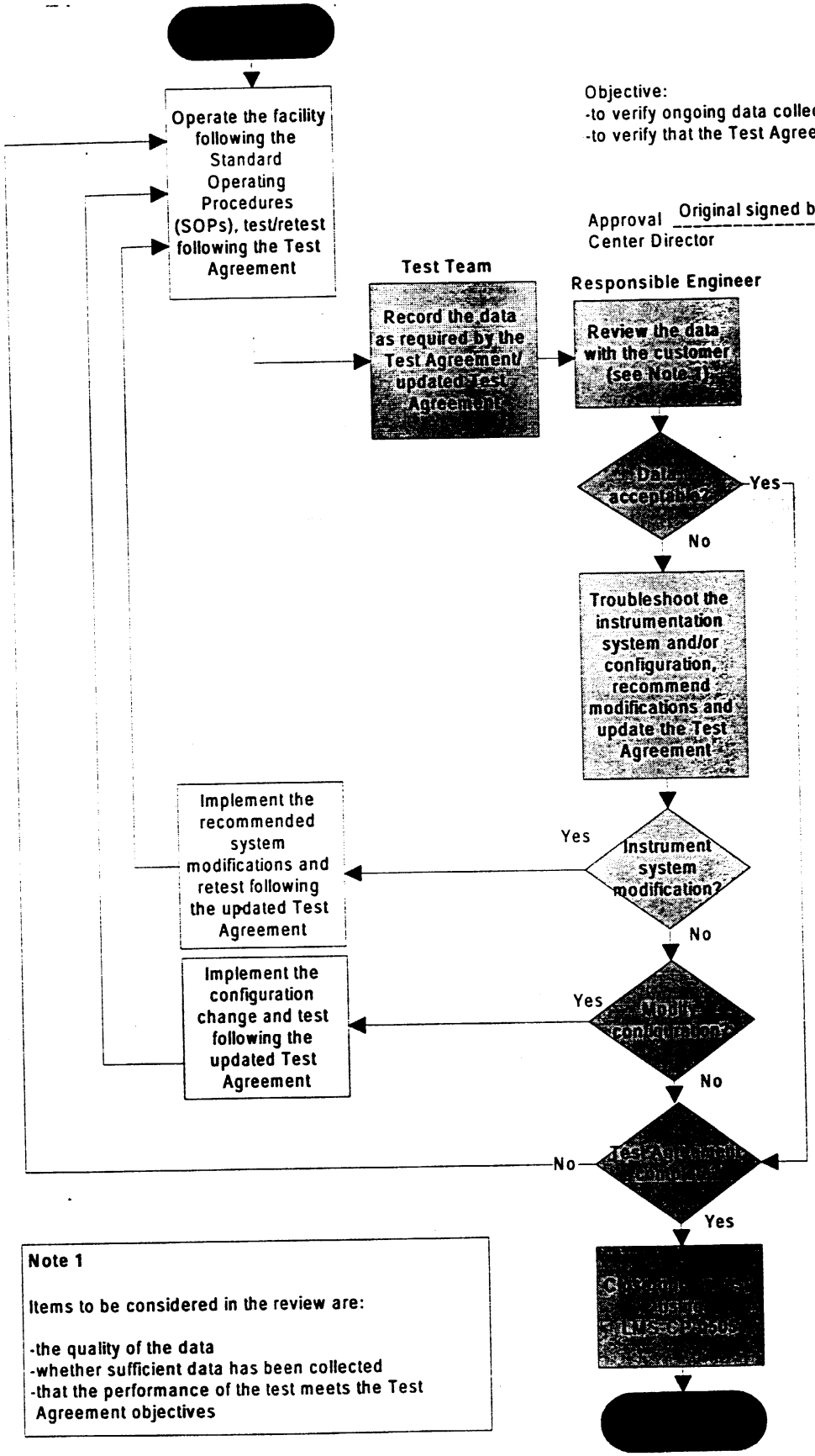
SAMPLE

CONDUCTING A WIND TUNNEL TEST

LMS-CP-0504
Revision: A

Objective:
-to verify ongoing data collected meets requirements
-to verify that the Test Agreement is followed

Approval Original signed by J. F. Creedon
Center Director



Definitions

For the purpose of this process, the following definitions apply:

Test Team makeup as defined in LMS-CP-0502, Note 3

Configuration: Test article

Note 1

Items to be considered in the review are:

-the quality of the data
-whether sufficient data has been collected
-that the performance of the test meets the Test Agreement objectives

Verify that this is correct revision before use by checking the LMS Web Site

SAMPLE

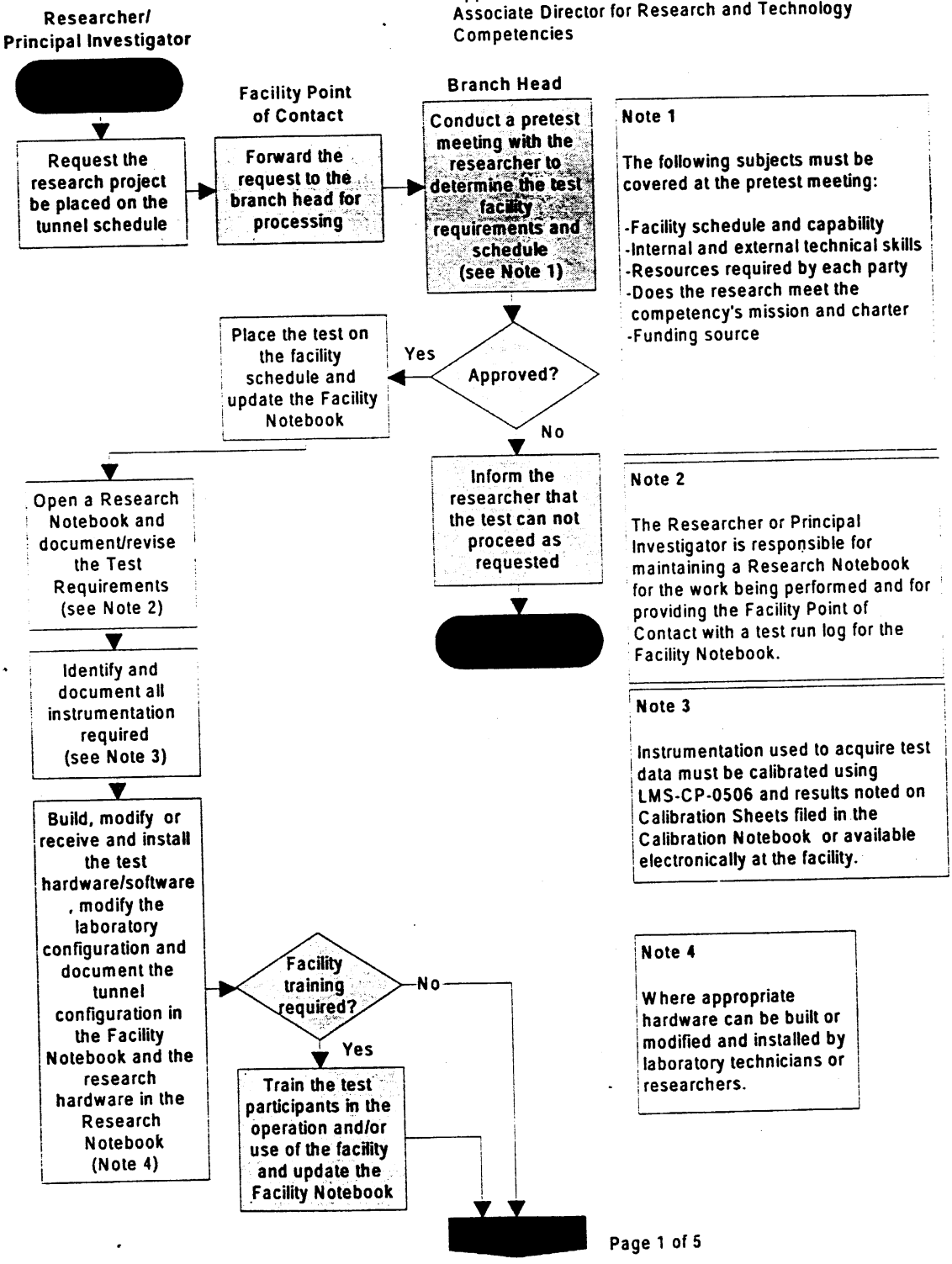
CONDUCTING AERODYNAMIC RESEARCH WITHIN LABORATORY WIND TUNNELS

LMS-OP-0514
Revision: A

Section 1: Research Conducted by Team Outside the Branch

Objective:
-to conduct experiments in Aerodynamics Laboratories

Approval Original signed by Samme D. Joplin for
Associate Director for Research and Technology Competencies



Note 1

The following subjects must be covered at the pretest meeting:

-Facility schedule and capability
-Internal and external technical skills
-Resources required by each party
-Does the research meet the competency's mission and charter
-Funding source

Note 2

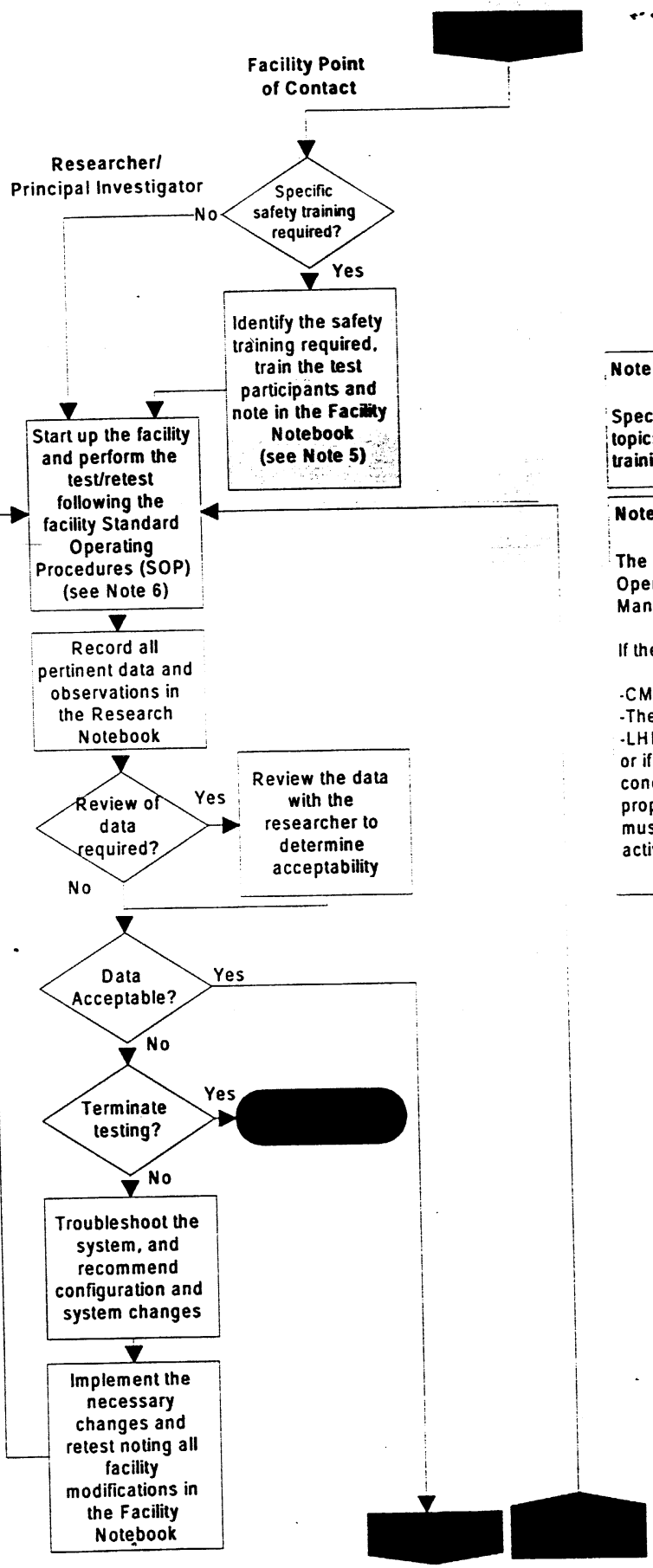
The Researcher or Principal Investigator is responsible for maintaining a Research Notebook for the work being performed and for providing the Facility Point of Contact with a test run log for the Facility Notebook.

Note 3

Instrumentation used to acquire test data must be calibrated using LMS-CP-0506 and results noted on Calibration Sheets filed in the Calibration Notebook or available electronically at the facility.

Note 4

Where appropriate hardware can be built or modified and installed by laboratory technicians or researchers.



Note 5

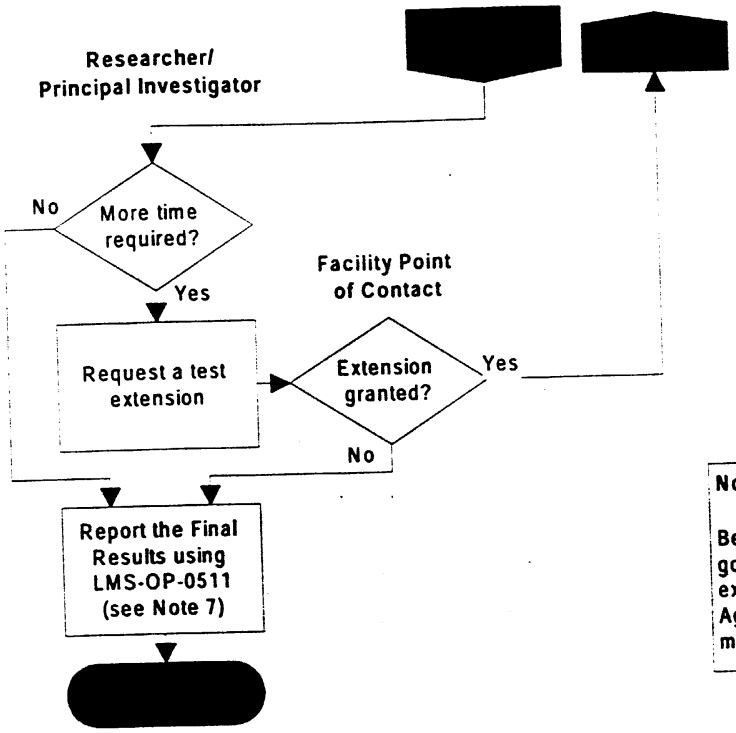
Specialized safety training includes such topics as laser and chemical-related training.

Note 6

The document repository for Standard Operating Procedures is Configuration Management On-Line (CMOL)

If the facility is covered by

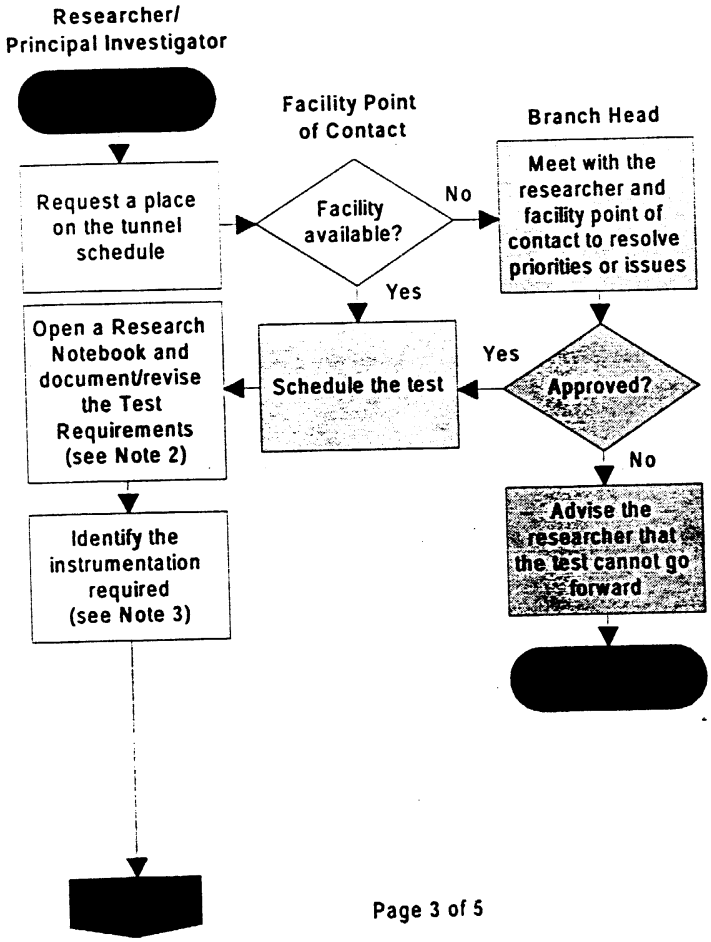
-CMOL
-The Langley Risk Assessment Program
-LHB1710
or if the proposed activity presents any conceivable risk to personnel or property safety, the Facility Safety Head must be consulted prior to initiating an activity.

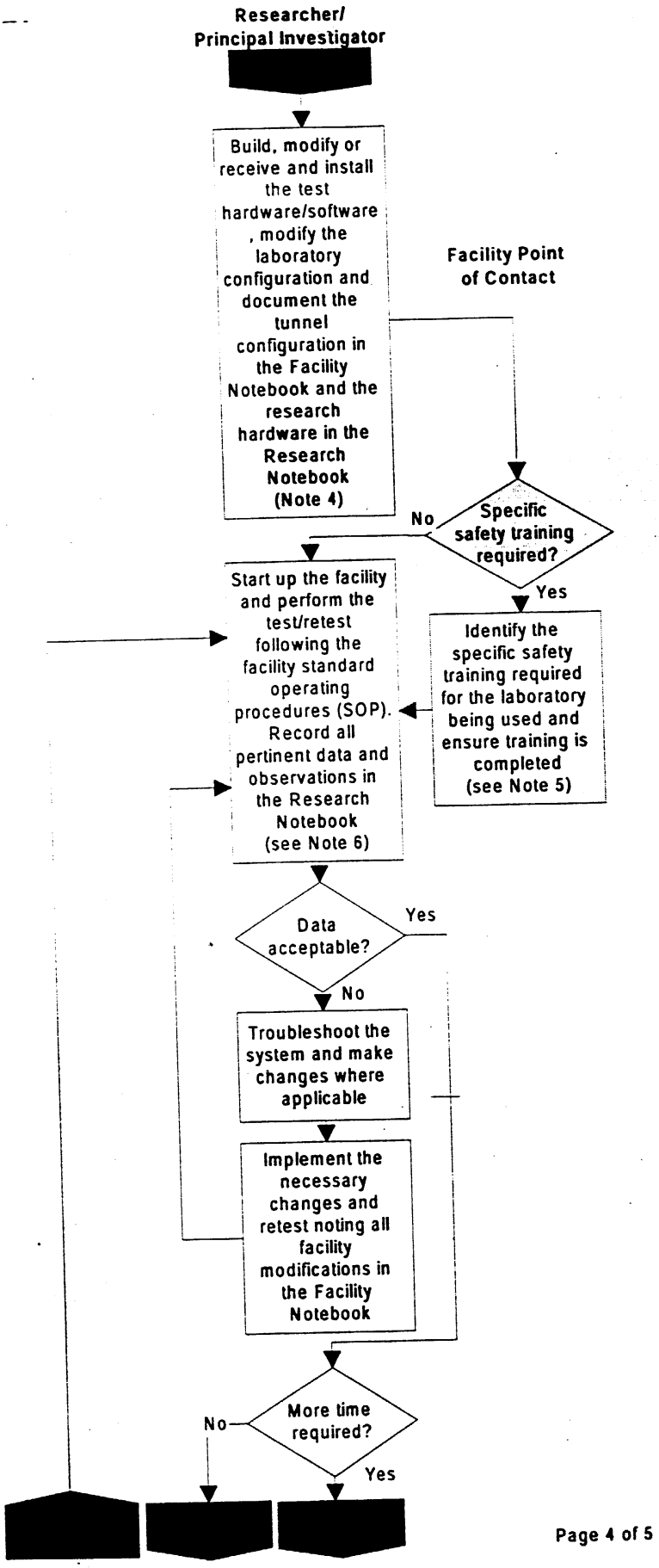


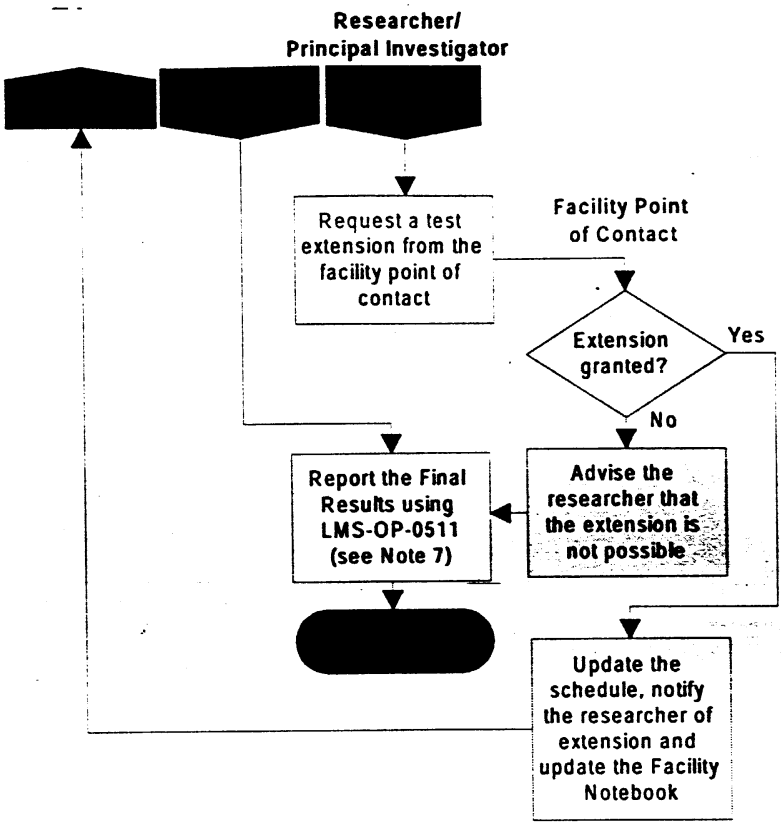
Note 7

Before documentation can proceed, any govern agreement between LaRC and an external customer -- Memorandum of Agreement or Inter Agency Agreement -- must be followed.

Section 2: Research Conducted by a Team Within the Branch

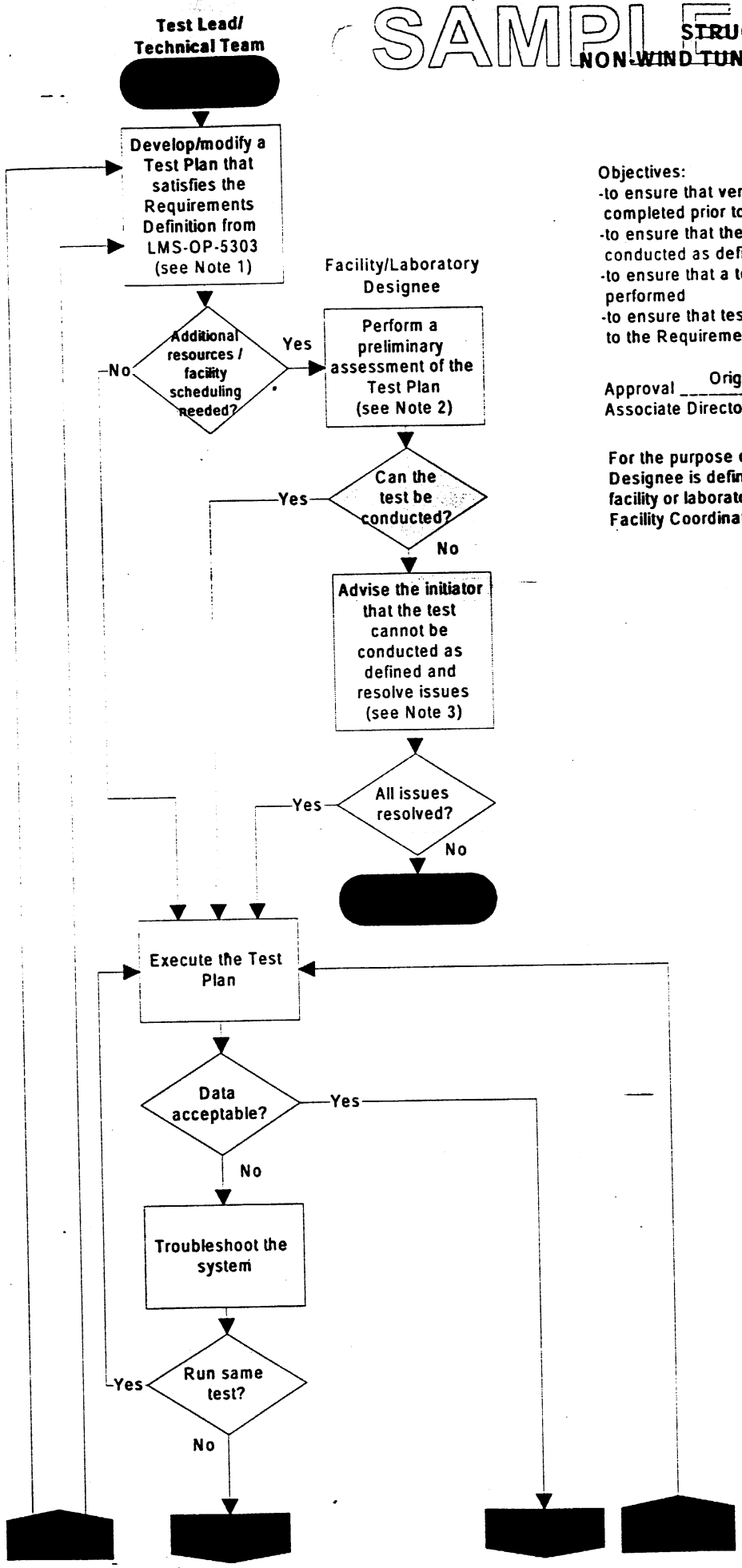



Researcher/
Principal Investigator
[redacted]
Build, modify or receive and install the test hardware/software, modify the laboratory configuration and document the tunnel configuration in the Facility Notebook and the research hardware in the Research Notebook (Note 4)
Facility Point of Contact
Specific safety training required?
No
Yes
Identify the specific safety training required for the laboratory being used and ensure training is completed (see Note 5)
Start up the facility and perform the test/retest following the facility standard operating procedures (SOP). Record all pertinent data and observations in the Research Notebook (see Note 6)
Data acceptable?
Yes
No
Troubleshoot the system and make changes where applicable
Implement the necessary changes and retest noting all facility modifications in the Facility Notebook
More time required?
No
Yes
[redacted]
[redacted]
[redacted]


Researcher/
Principal Investigator
Request a test extension from the facility point of contact
Facility Point of Contact
Extension granted?
Yes
No
Advise the researcher that the extension is not possible
Report the Final Results using LMS-OP-0511 (see Note 7)
Update the schedule, notify the researcher of extension and update the Facility Notebook

STRUCTURES AND MATERIALS
NON-WIND TUNNEL EXPERIMENTATION PROCESS

LMS-OP-5304
Revision: B



Objectives:
-to ensure that verification of the Requirements Definition is completed prior to testing being conducted
-to ensure that the product user is notified if a test cannot be conducted as defined
-to ensure that a test plan is developed prior to the test being performed
-to ensure that test data is collected and reported according to the Requirements Definition

Approval Original signed by Ajay Kumar
Associate Director for Research and Technology Competencies

For the purpose of this process, a Facility or Laboratory Designee is defined as the party responsible for a given facility or laboratory and may include such job titles as: Facility Coordinator, Facility Manager, Laboratory Manager

Note 1

The Test Plan must include the following information:

-Test setup
-Equipment to be used
-Calibration status of all instruments
-Environmental conditions
-Number of test sets
-Testing methodology

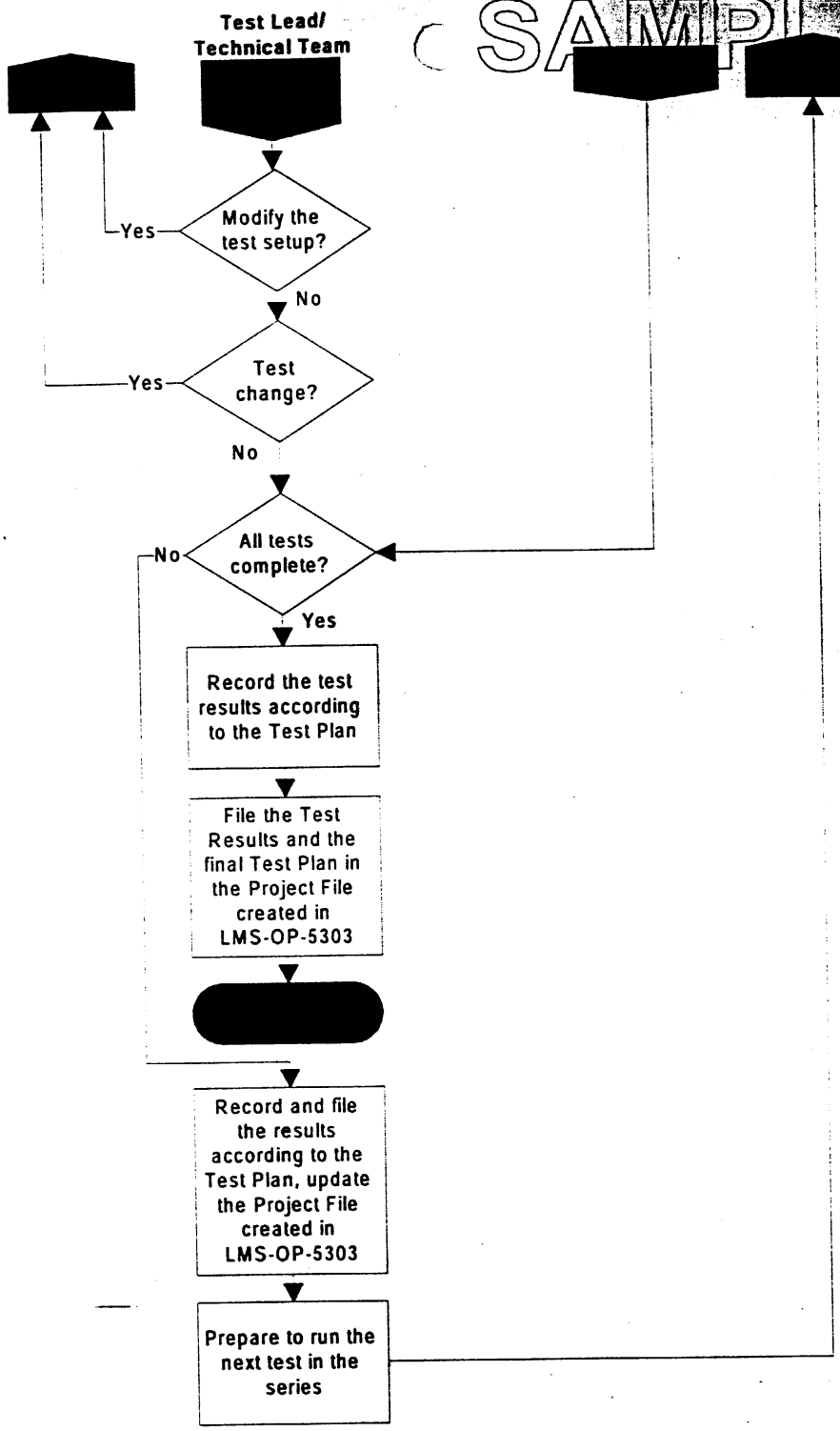
Note 2

The preliminary assessment consists of:

-Verification that the test can be conducted as scheduled
-Verification that financial and personnel resources are available
-Determination of any facility modifications which may need to be done
-Verification that the facility has the capability of capturing the data as requested

Note 3

It is the responsibility of the Facility/Laboratory Designee to work with the Test Lead/Technical Team at this stage of the testing process to determine the cause of disapproval and recommend modifications to the request.


Test Lead/
Technical Team
Modify the test setup?
Yes
No
Test change?
Yes
No
All tests complete?
No
Yes
Record the test results according to the Test Plan
File the Test Results and the final Test Plan in the Project File created in LMS-OP-5303
Record and file the results according to the Test Plan, update the Project File created in LMS-OP-5303
Prepare to run the next test in the series

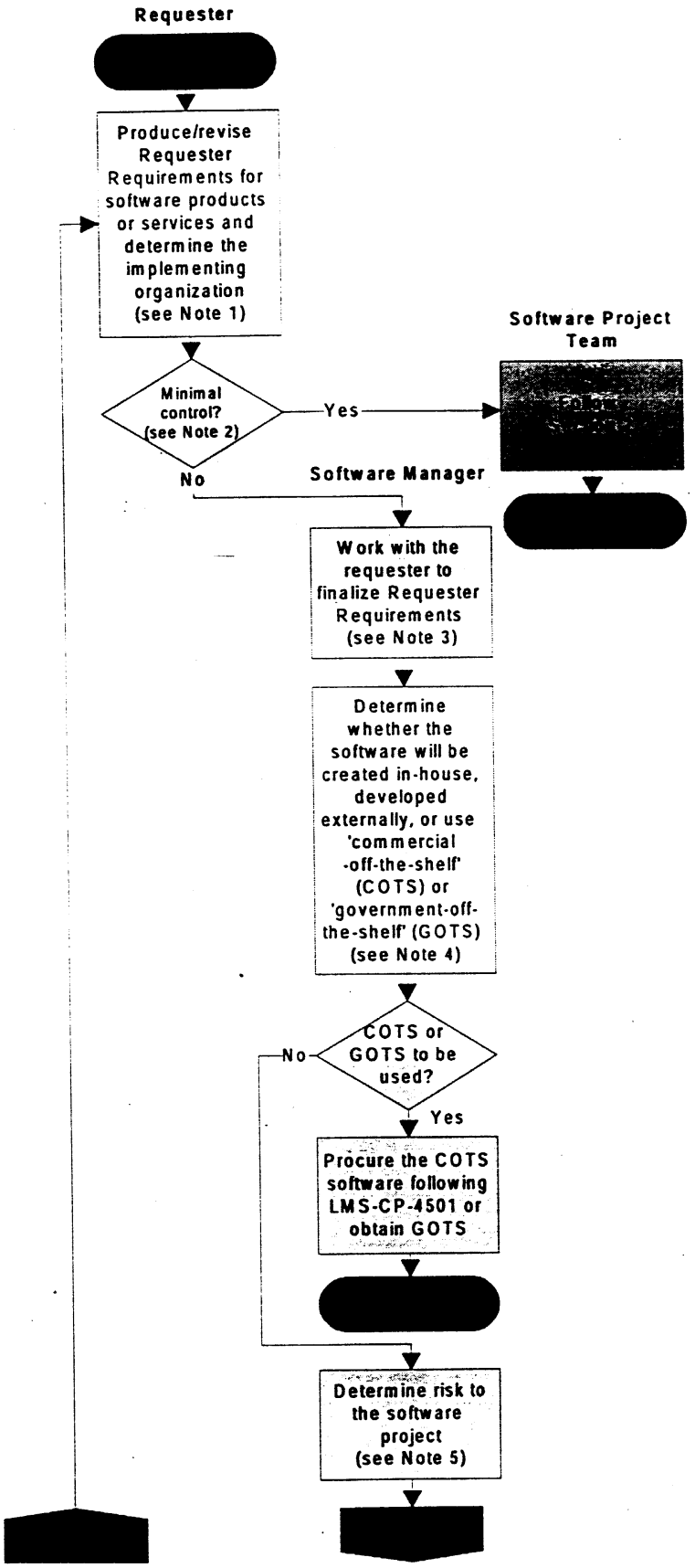
SOFTWARE PLANNING, DEVELOPMENT, ACQUISITION, MAINTENANCE, and OPERATIONS

Objectives:
-to define the process to develop, acquire, maintain and operate software at LaRC
-to ensure requester requirements are met

Approval _____
Deputy Center Director

Table of Contents

Section 1: Software Process Flowchart for all Classes of Software



Note 1
This procedure applies to software developed by or for LaRC, including new software and modifications to existing software. Apply this procedure, LMS-CP-5528, if the software or the data produced by the software are delivered or published. The Software Manager must make informed judgments on applying this procedure to the individual project situation.

This procedure is for use by all involved in the software process: requesters, supervisors, software managers, software critical-control engineers, and other software project team members. These roles are defined in Appendix A. A single individual can perform multiple roles within a project.

If both the yes and no branches of a decision diamond apply to different parts of a given project, follow both branches.

Organizational Unit Managers and requesters are responsible for integrating software engineering processes with system development and program/project processes.

Note 2
Section 2, Requirements for Applying Minimal-Control to Software, applies to software that:

-Is not a deliverable
-Has negligible risk to LaRC
-Has limited or no maintenance

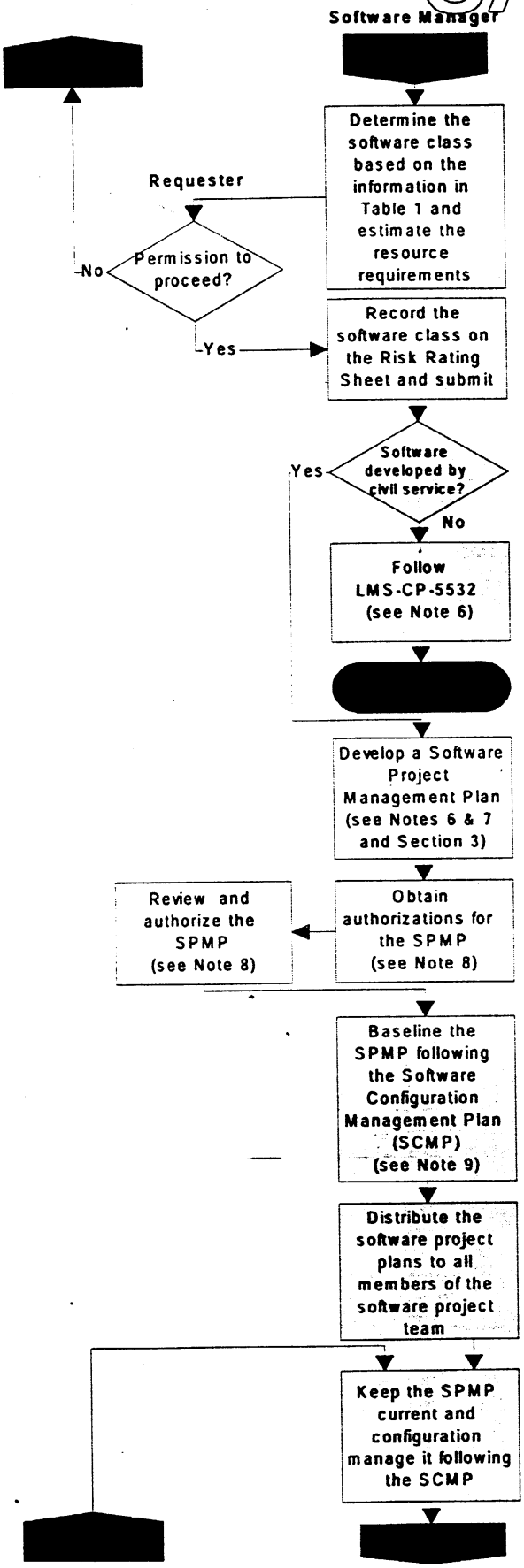
Note 3
It is the shared responsibility of the requesting and implementing organizational units to appoint a Software Manager.

Advice on preparing Requester Requirements is given in the *Software Engineering Guides* [18] see "User Requirements", and guidance on software requirements management is given in the *Capability Maturity Model* [19], section 7.1.

Note 4
To satisfy NASA requirements [11], the Software Manager must determine whether a Trade Study will be performed before software is created or acquired.

Note 5
Initiate an on-line Risk Rating Sheet at URL:
http://sw-eng.larc.nasa.gov/process/sheets.html

Each risk area on the Risk Rating Sheet which has a risk rating greater than 2 must be considered for risk management.



Note 6
Software development, maintenance, and operations may be performed by civil servants or contractors. If the work is performed by civil servants, the Software Manager must produce a Software Project Management Plan (SPMP) as described in Section 3. If the work is performed by a contractor, the acquiring Software Manager must produce a Software Acquisition Plan (see LMS-CP-5532), and the contractor must produce an SPMP. If the work is performed by some combination of the above, the acquiring Software Manager must produce both an SPMP (for the parts of the work performed by civil servants) and also a Software Acquisition Plan (for the parts performed under contract). In addition, the contractor must produce an SPMP (for the parts of the work performed by the contractor). For examples of completed plans see [3].

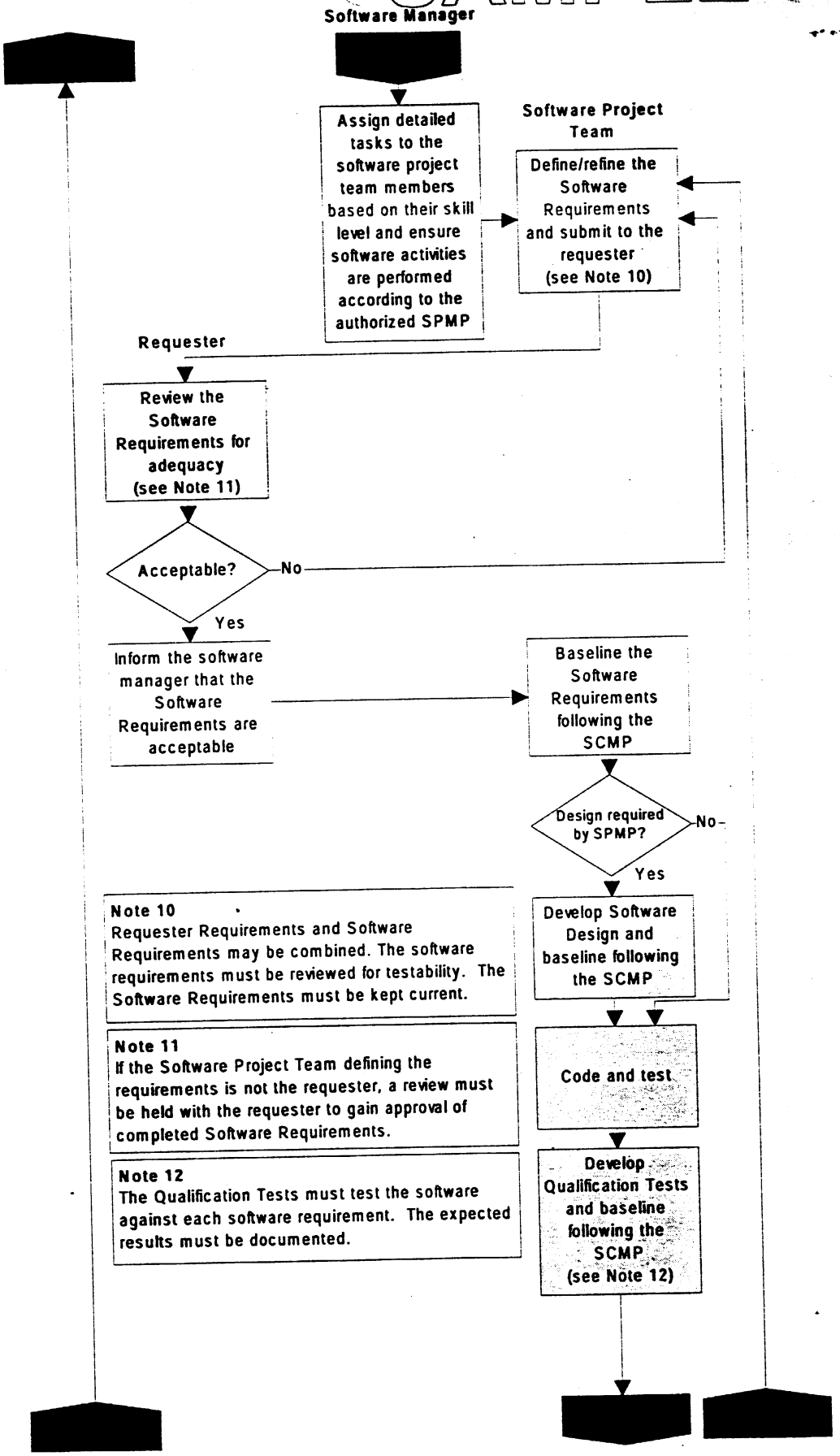
Contracted efforts must be complete and severable tasks.

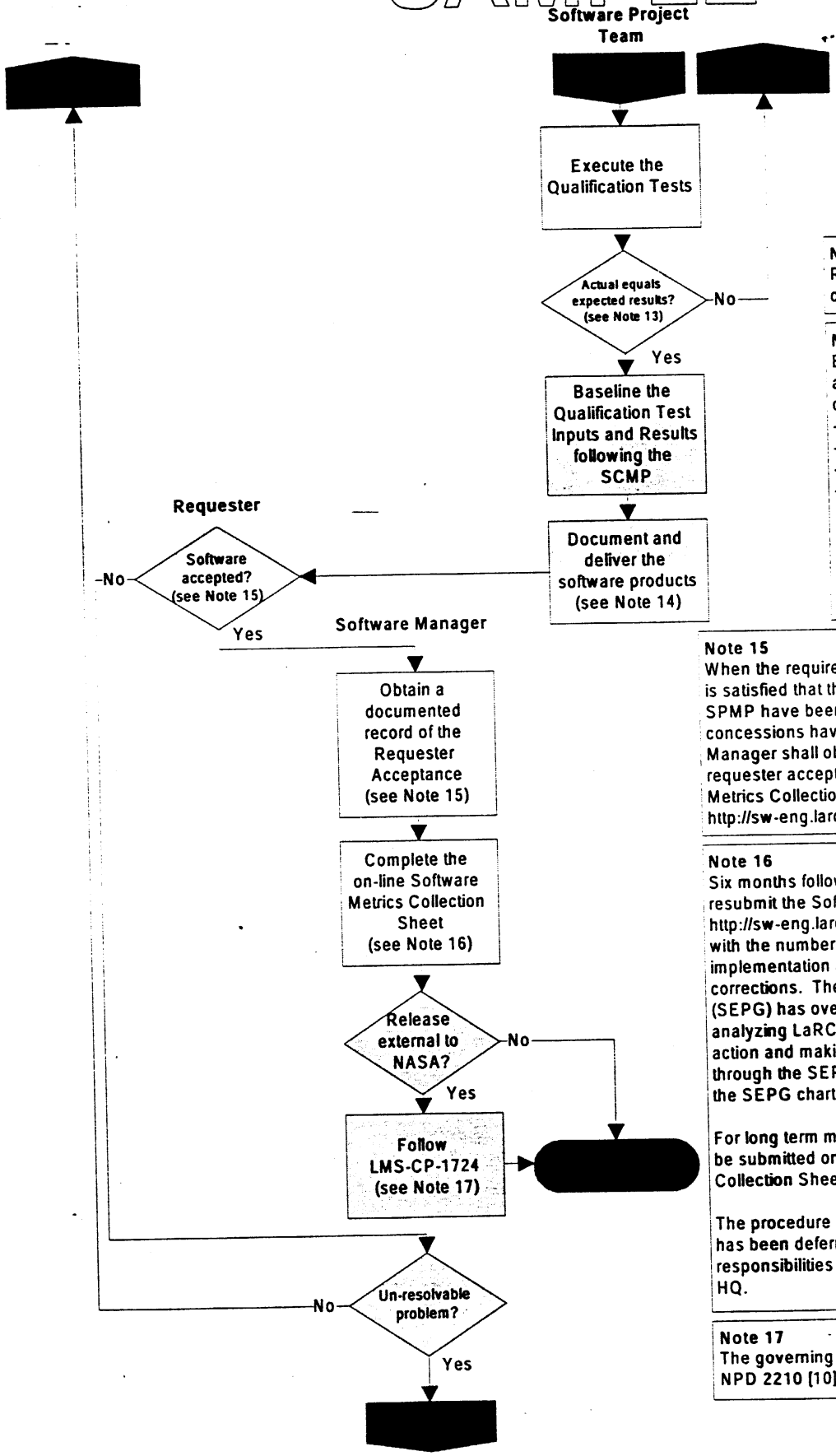
Note 7
For Critical-Control software projects, also follow the requirements given in Section 4.

Note 8
The Supervisor(s) is responsible for authorizing human resources and the requester is responsible for authorizing the work per the SPMP. A record of authorization must be retained.

The Requester must ensure that installation, operation, and maintenance phases of the project are addressed in the SPMP if they are applicable to the project.

Note 9
For High and Critical class software, submit a paper or electronic copy of the Software Project Management Plan to the Head, Office of Mission Assurance (OMA). The software project must not commence until OMA approves High and Critical class SPMPs per LMS-CP-4754.


Software Manager
Assign detailed tasks to the software project team members based on their skill level and ensure software activities are performed according to the authorized SPMP
Software Project Team
Define/refine the Software Requirements and submit to the requester (see Note 10)
Requester
Review the Software Requirements for adequacy (see Note 11)
Acceptable?
No
Yes
Inform the software manager that the Software Requirements are acceptable
Baseline the Software Requirements following the SCMP
Design required by SPMP?
No
Yes
Develop Software Design and baseline following the SCMP
Code and test
Develop Qualification Tests and baseline following the SCMP (see Note 12)
Note 10
Requester Requirements and Software Requirements may be combined. The software requirements must be reviewed for testability. The Software Requirements must be kept current.
Note 11
If the Software Project Team defining the requirements is not the requester, a review must be held with the requester to gain approval of completed Software Requirements.
Note 12
The Qualification Tests must test the software against each software requirement. The expected results must be documented.



Note 13
Return to the appropriate activity to make corrections.

Note 14
Each delivery must be documented with a Software Version Description which contains the following information:
-Project title
-Date of delivery
-Point of contact
-Inventory of all baselined CIs to be delivered, including unique CI identifier and description
-Instructions for reading and installing CIs
-A description of all changes incorporated in this delivery

Note 15
When the requirements have been met and the requester is satisfied that the acceptance criteria recorded in the SPMP have been achieved, or when appropriate concessions have been agreed upon, the Software Manager shall obtain a record (e.g. e-mail or signature) of requester acceptance and complete the on-line Software Metrics Collection Sheet at URL: http://sw-eng.larc.nasa.gov/process/sheets.html

Note 16
Six months following delivery, the Software Manager must resubmit the Software Metrics Collection Sheet at URL: http://sw-eng.larc.nasa.gov/process/sheets.html with the number of Problem Reports approved for implementation and the hours spent performing corrections. The Software Engineering Process Group (SEPG) has overall responsibility for collecting and analyzing LaRC software engineering process metrics for action and making them available to the LaRC community through the SEPG web site [3]. LAPG 1150.2 describes the SEPG charter.

For long term maintenance efforts, software metrics must be submitted on an annual basis on the Software Metrics Collection Sheet.

The procedure for collecting metrics in NPD 2820.1 [11] has been deferred until specific metrics and roles and responsibilities for collection are further defined by NASA HQ.

Note 17
The governing policy for external release of software is NPD 2210 [10].

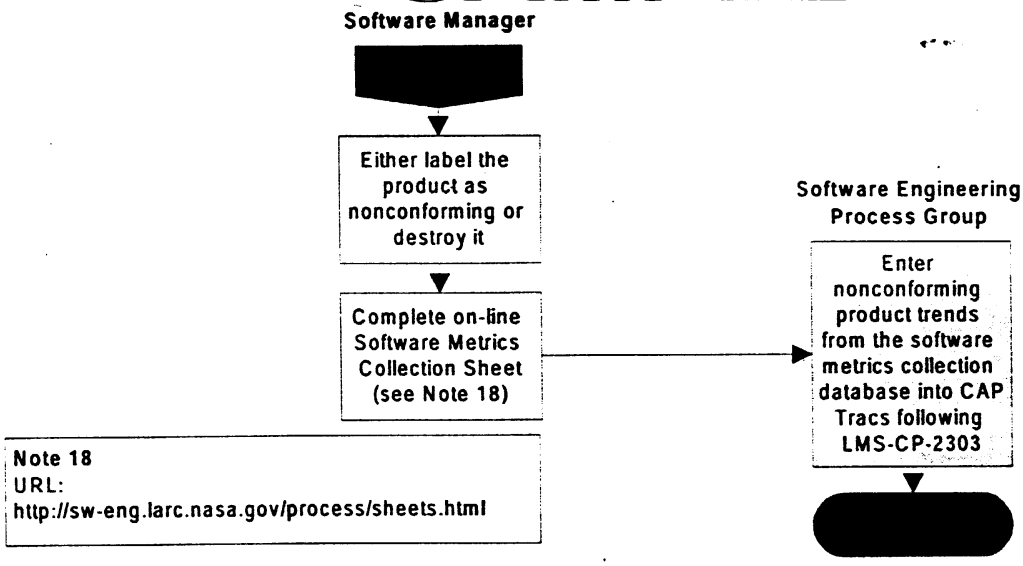


Table 1: Software Classes for Langley Research Center (LaRC)

Software Class	Risk Level	Use of Software or Generated Data	Level of Software Engineering Rigor
Critical Control	Extreme risk to LaRC's reputation, including loss of life or injury/illness to personnel; major damage (in excess of $250K) to equipment, facilities, or the environment; or major collateral damage as a result of tests.	Software which is safety-critical. The common characteristics of the software are that the consequences of failure are so serious that liabilities cannot be fully quantified.	• Critical-control planning and analysis required • Software Project Management Plan (SPMP) and software standards required • Defined development procedures with appropriate analysis of the software before operational use • Formal problem and change management • Formally documented reviews, testing, and maintenance
High Control	Moderate to high degree of risk to LaRC's reputation, including failure of a mission; damage to the Center's reputation or prestige; extended loss of access to a system; or loss of data important to the Center.	Software that may support research or experimentation; may be used in tests; may be used to monitor/operate equipment; may be used to collect, process, model, or simulate data/information or activities; or may require maintenance for the evolution of the software/data.	• SPMP and software standards required • Judicious problem and change management • Documented reviews, testing, and maintenance
Low Control	Small degree of risk to LaRC's reputation.	Software and/or resulting data is delivered to requesters external to the developing organization. Software has limited or no maintenance.	• SPMP is required • Only sufficient rigor to ensure requirements are met and repeatability of results can be achieved • Documented testing
Minimal Control	Has negligible risk to LaRC's reputation.	Software is not a deliverable and has limited or no maintenance.	• Log required • Only sufficient rigor to ensure requirements are met and repeatability of results can be achieved • Documented testing

Section 2: Requirements for Applying Minimal Control to Software

At the point of validation, prior to delivery or publication of the data produced by the software, record the following information in a Log or Research Plan:

- Project title
- Software class
- Version date
- The requirements: software capabilities, outputs, and any constraints on the software
- The tests performed to validate the product(s) and/or data (such as comparison of actual software results with expected lab results and/or results from similar algorithms)

Following validation ensure:

- That all software products, results, corresponding Software Test Inputs and Test Outputs have been given a unique identifier
- That backups of these products have been stored on physically different media
- That the following information has been recorded in the Log:
  - The storage location of the products, results, corresponding Software Test Inputs and Test Outputs
  - How access to these products is controlled
  - Backup/restoration contact and retention period

If removable media is used, ensure the following information is recorded on media labels:

- Project title
- Content description
- Date electronic files were transferred to the media
- Disk or tape sequence number (e.g. Disk 7 of 9)
- Retention period

For software that is operated routinely, describe or reference the activities or tasks which will be followed for software operations.

General Notes:

If "Commercial-Off-The-Shelf" (COTS) or "Government-Off-The-Shelf" (GOTS) will be used to fulfill the requirements, procure COTS products by following LMS-CP-4501.

One Log may be used for multiple projects.

For the user's convenience, the requirements listed above have been posted in Microsoft Word and text templates at URL: http://sw-eng.larc.nasa.gov/process/

Section 3: Software Project Management Plan (SPMP) Requirements for Low, High and Critical Control

3.1 Developing a SPMP

3.1.1 The Software Manager must produce an SPMP. For in-house projects, if software quality assurance support is needed in completing the SPMP, see LMS-CP-4754.

3.1.2 The following software Project Tracking Information from the SPMP and changes to it must be provided to the supervisor:

- Project title
- Software class

- Start and end dates for the work package, or work breakdown structure (WBS) elements, or software lifecycle phases
- Assigned employee names and the percentage of their time per work package, or WBS element, or phase
- Software Manager's name and percentage of time allocated to this role
- Date of approval of the SPMP
- Organization codes when more than one organization is involved in the project

(Note: Document 193 [3] may be used to keep a record of this information.)

3.1.3 The Software Manager must review the requester requirements for completeness, clarity, consistency, and feasibility.

3.1.4 The Software Manager must use the requirements (and changes to the requirements) as the basis for software plans, schedule, work products, and activities. Guidance on software requirements management can be found in *The Capability Maturity Model: Guidelines for Improving the Software Process* [19, section 7.1].

3.1.5 The SPMP must specify or reference the requester acceptance criteria.

3.1.6 The Software Manager must select and document in the SPMP the software life cycle phases that will be used on the project.

3.1.7 The life cycle must include a requester requirements phase and/or a software requirements phase, a code and testing phase, and a qualification-testing phase; in addition, Critical-Control class software projects must also include a design phase. *Guidance on LMS Software Procedures* [1] discusses several life cycle options and contains guidance on choosing one based on the project specifics.

3.1.8 For High-Control and Critical-Control class software projects, the processes, activities, and tasks described in IEEE/EIA 12207.0-1996 [8], must be tailored appropriately to the software project and followed in implementing the software life cycle.

3.1.9 The Software Manager must select and document in the SPMP the software development approach that will be used on the project. *Guidance on LMS Software Procedures* [1] provides recommendations on choosing a development approach based on project size, complexity, and risk.

3.1.10 For Low-Control software projects, the SPMP may take the form of a Log, and it may be for either an individual project or a series of related projects. If more than one project is covered under the plan, the Risk Rating Sheet and the Software Metrics Collection Sheet, must be completed for each project.

3.1.11 For Low-Control software projects, if risks to the project completion are identified, document and track the risk and the associated mitigation or avoidance approach.

Subsections 3.1.12 through 3.1.19 of this procedure do <u>not</u> apply to Low-Control class software.

3.1.12 The SPMP must be developed in accordance with the guidance provided in IEEE/EIA 12207.0 [8], clause 5.2. The SPMP may be a stand-alone plan or included as sections of the project plan. IEEE 1058.1 [5] or similar standard in use (e.g., IEEE/EIA 12207.1, Section 6.11 [9], NASA-STD-2100-91 [12]), may be followed in documenting the SPMP. An outline of the IEEE 1058.1 SPMP is provided in the *Software Project Management Plan Guidance* [2], which also contains guidance on filling out selected sections of the plan.

3.1.13 The minimum contents of software life cycle data documentation must be as described in IEEE/EIA 12207.1-1997 [9], or similar standard in use (e.g., NASA-STD-2100-91 [12]), in conjunction with supplemental documents required for Critical-Control class software. Depending on how the life cycle is tailored, not all life cycle data and documentation will be required, and all life cycle data need not be in the form of separate documents (Refer to

IEEE/EIA 12207.1 [9] section 4.3, table 1 for the full listing of life cycle data).

3.1.14 NASA policy [11] requires that — based on the cost, size, life span, and complexity — the plan address "design tradeoff management, risk management [13, Section 4.2][20], requirements management [19, Section 7.1], software project planning [19, Section 7.2], project tracking and oversight [19, Section 7.3], software product engineering [19, Section 8.5], subcontract management [19, Section 7.4], configuration management [19, Section 7.6], quality assurance [19, Section 7.5], and peer review [19, Section 8.7]".

3.1.15 The Software Manager and project personnel must identify, analyze, plan, track, control and document the risks involved in the software project on a continuous basis. NASA requirements on risk management are provided in section 1.f of NPD 2820.1, and section 4.2 of NPG 7120.5a [13]. The *Continuous Risk Management Guidebook* [20] and the *NASA Continuous Risk Management Course* [17] both offer additional information and guidance on risk management. Note: for the reader's convenience, the 7120.5a requirements on risk management plan contents have been included in the *Software Project Management Plan Guidance* [2] and a risk spreadsheet example is provided at URL: http://sw-eng.larc.nasa.gov/process/ under the "Examples and References" page.

3.1.16 The Software Manager must define the mechanism that specifies how problems will be documented, tracked, and resolved.

3.1.17 The SPMP must specify the procedures to be used for performing the following tracking and oversight activities:

- Authorizing new commitments
- Communicating changes to commitments to software staff
- Tracking and recording actual software size, effort, cost, and schedule of work products against estimates; recording deviations; and recording the revised schedule. Note: When it is vital to the success of the project, computer resource utilization must also be tracked.
- Tracking progress of technical activities and work products, and taking corrective action
- Conducting periodic reviews to track and record technical progress, plans, performance, and issues against the SPMP.

3.1.18 The SPMP must specify the software project tracking and oversight records to be retained.

3.1.19 Documented reviews must be performed according to the SPMP schedule and documented procedure(s).

3.1.20 The results of each review and the names of the reviewers must be documented and retained.

3.1.21 Verification activities must be scheduled. The extent and focus of verification activities will be influenced by the software class and determined by the Software Manager. (See *Guidance on LMS Software Procedures* [1].)

Note: Formal Inspections can be used to satisfy the requirement for software reviews and verification. The use of Formal Inspections is not limited to "source code" in its applicability. Formal Inspections can also be used to find defects in documentation, design products, test, and data. For more information on software Formal Inspections, see the *Instructional Handbook for Formal Inspections* [16].

3.1.22 Validation activities must be scheduled (see *Guidance on LMS Software Procedures* [1]).

Note: Verification, review and validation can be treated as separate activities or integrated and performed as one activity. It is the responsibility of the Software Manager to select the best method for performing these activities.

3.1.23 NASA policy [11] requires the developer to document software "as to its form and function and verify that such software performs the functions claimed on the platform(s) for which it is

designed without harm to the systems or the data contained therein."

3.1.24 All software related plans and schedules must be documented and updated to ensure they are current, correct, and feasible. It is recommended that they be reviewed at the end of each phase.

3.1.25 Additional guidance on software planning is found in the *Software Engineering Guides* [18] and the *Software Management Guidebook* [14]. The LaRC Software Process Improvement web site contains examples of products and best practices currently in use at LaRC [3].

3.1.26 The Software Configuration Manager must produce a Software Configuration Management Plan according to the requirements specified in LMS-CP-5529.

3.2 Installation Planning

3.2.1 If installation services are required as part of the software project, the Software Manager must record in the SPMP the mechanisms that will be used for replication, delivery, installation of the software, and training the requester to use the products delivered.

3.2.2 In addition, the plan must define the roles and responsibilities of all involved in the transition process (including the point of contact for requester service).

3.3 Operational Support Planning

3.3.1 If operations support services are required as part of the software project, the Software Manager must record in the SPMP the activities and tasks for which the operator is responsible and the point of contact for requester support.

3.3.2 In addition, IEEE/EIA Standard 12207.0 clause 5.4 [8] must be used for defining the operation process, unless a similar standard is already in use (e.g., NASA-STD-2100-91 [12]).

3.4 Maintenance Planning

3.4.1 If maintenance services are required as part of the software project, the Software Manager must record the following in the SPMP: the level of maintenance to be performed (e.g., modify only to fix problems, or modify to include fixes and enhancements); how problems and/or modifications are identified, classified, prioritized, tracked, and analyzed; and the approval, implementation, and test process to be used.

3.4.2 IEEE/EIA Standard 12207.0, clause 5.5 [8] must be used for defining the maintenance process unless a similar standard is already in use (e.g. NASA-STD-2100-91 [12]). It is recommended that the IEEE Standard 1219-1998 [7] be used for developing the plan.

3.4.3 If the project only involves maintenance, the Maintenance Plan satisfies the requirements for an SPMP.

3.4.4 Where an external contractor performs maintenance, the plan must form the basis for defining the work requirements of the contractual agreement.

3.5 Other Plans

3.5.1 If applicable to the software project, the Software Manager must include a plan to address requirements for health, safety, systems administration, and security (e.g., proprietary, classified, financial, etc.) in the SPMP.

Section 4: Requirements for Applying Critical Control to Software

4.1 Additional Responsibilities

4.1.1 The Software Manager must ensure that a Hazard Analysis has been performed by the Head of the Office of Safety and Facility Assurance.

4.1.2 The Software Critical-Control Engineer must be able to report any critical-control concerns to the Systems Engineer.

4.1.3 The Software Manager is responsible for naming the Software Critical-Control Engineer, the leader of the Software Project Team, and the leader of the Verification and Validation (V&V) Team in the SPMP.

Note: Additional guidance on software safety can be found in [15].

4.2 Software Integrity Levels

4.2.1 The Software Manager must ensure that a Software Integrity Level (SIL) is assigned to each software component which can cause or contribute to a hazard. A SIL is assigned based on hazard(s) identified in the Hazard Analysis (See Table 4-1). Use Table 4-2 to determine the techniques to apply during development.

4.2.2 Software Manager must not lower a SIL below that indicated by the Hazard Analysis.

4.2.3 Within a software component, all software units must have the same SIL.

4.2.4 For SILs S3 and S4, the Verification and Validation (V&V) Team must be comprised of different personnel than those of the Software Project Team.

Table 4-1: Mapping of Hazards to Software Integrity Levels

Safety-critical Hazards	SIL
• Loss of life or significant injury/illness to personnel • Major damage to equipment, facilities, or the environment • Major collateral damage as a result of tests	S4
• Injury/illness to personnel • Damage to equipment, facilities, or the environment • Collateral damage as a result of tests	S3
• Moderate endangerment of personnel • Moderate damage to equipment, facilities, or the environment • Moderate collateral damage as a result of tests	S2
• Minor endangerment of personnel • Minor damage to equipment, facilities, or the environment • Minor collateral damage as a result of tests	S1

Table 4-2: Application of Techniques to be Used Based on Software Integrity Level

	Software Integrity Level (SIL)			
Technique	**S4**	**S3**	**S2**	**S1**
Software Specification	semi-formal or formal (if feasible)	semi-formal (rigorous)	informal, natural language	Informal, natural language
Prototyping	yes	yes		
Defined Design Process	yes	yes	yes	yes
Requirements & Design Reviews	by whole project team	by project team	by project team	by peer review
Configuration Management	formal	formal	informal	informal
Review of Hazard Analysis Report	by whole project team	by project team	by project team	by project team
Coding Languages	safe subset of high-level language	safe subset of high-level language	high-level language	
Defensive Programming	yes	yes	yes	
Compiler	validated	validated		
Object Code (vendor-supplied)	verified	verified		
Worst Case Execution Time	analyzed	analyzed		
Static Code Analysis	yes	yes		
Formal Inspection	yes	yes	Yes	yes
Testing Coverage: • High-level requirements • Low-level requirements • Data and statements • Branches	 yes yes yes yes	 yes yes yes yes	 Yes Yes Yes	 yes yes
V&V	different than developer	different than developer	by developer	by developer

Supporting definitions for Table 4-2:

Configuration Management–formal: Characterized by the use of documented procedures for controlling and tracking software changes; tools are used to automate version control and change tracking.

Configuration Management–informal: Characterized by the use of documented procedures for controlling and tracking software changes; personnel manually perform version control and change tracking.

Safe subset of high-level language: Vendor-supplied, nonstandard features are not used or use is minimized and isolated.

Compiler–validated: The full set of language statements to be used are employed to determine allowable spelling deviations, order dependency, and comment recognition and to confirm optional syntax, statement termination requirements, maximum length of variable names, scope of variables, operator precedence, addressing schemes, and other similar issues. Vendor validation of a compiler covering the above items is acceptable.

Defensive programming: Characterized by coding practices which eliminate or minimize the probability that an input will cause an application to fail. Considerations include explicitly declaring and initializing all variables, context-checking all input variables (i.e., matching actual vs. expected type of input), boundary-checking all variables, providing default branch conditions, avoiding inheritance features after initialization, and other similar practices.

Object Code (vendor-supplied)–verified: Vendor-supplied library functions to be used are exercised in a test application to ensure that correct results are obtained. The test application calls library functions to confirm required and optional calling arguments, the type of required and optional calling arguments, side effects of invalid or missing arguments, boundary checks performed on arguments, returned error codes, and other similar issues.

Testing Coverage–data and statements: Data values are examined before and after the execution of a statement to verify that resultant value(s) are computed correctly and that only values which are expected to change are affected.

4.3 Software Critical-Control Plan

4.3.1 The Software Critical-Control Plan is a supplement to the SPMP. The plan must be developed in the initial stages of the project in order to provide visibility of all the activities that will contribute to the assurance of the critical control of the software. The outline for the Software Critical-Control Plan shown in Table 4-3 must be followed.

4.3.2 The Software Critical-Control Engineer must write the Software Critical-Control Plan.

4.3.3 The Software Manager must approve the Software Critical-Control Plan.

4.3.4 The Software Project Team must execute the Software Critical-Control Plan.

4.3.5 The Software Critical-Control Plan must be kept current.

Table 4-3: Software Critical-Control Plan

SOFTWARE CRITICAL-CONTROL PLAN
1. Purpose and Scope State the purpose and scope of the plan, including the critical-control goals that are expected to be achieved.
2. Definitions and References
3. Management Specify any additional specialized procedures and practices above those specified in the Software Project Management Plan. Include information that defines the level of independence of project activities and addresses staff competence to undertake the software project.
4. Procedures and Practices Describe arrangements for coordination on critical-control matters between organizations participating in the development of the total system and define circumstances under which matters relating to Hazard Analysis are referred to these other parties.
5. Disposition of Hazard Analysis Identify the software components for which the software critical-control analysis will be performed and document their respective SILs. If a higher SIL is applied for any software component, it is justified here.

4.4 Software Critical-Control Analysis

4.4.1 The Software Critical-Control Engineer must perform software critical-control analysis throughout the project life cycle. The purpose of the software critical-control analysis is to evaluate potential failures that may cause new hazards or contribute to existing ones and ensure that critical-control features are correctly implemented.

4.4.2 The Software Critical-Control Engineer must document the software critical-control analysis in the Software Critical-Control Analysis Report. The outline for a Software Critical-Control Analysis Report shown in Table 4-4 must be followed.

4.4.3 The Software Critical-Control Analysis Report must be available to the Project Manager for inclusion in the Hazard Analysis updates.

Table 4-4: Software Critical-Control Analysis Report

SOFTWARE CRITICAL-CONTROL ANALYSIS REPORT

1. Description of the system/subsystem(s)
   Provide a high level description of the system and its corresponding subsystems (e.g. facility safety interlock system, wind tunnel model protection system, etc.).
2. Description of the hardware
   Identify the number of processors and type, memory capacity, analog input/output boards, digital input/output boards, network interfaces, etc. References to drawings are appropriate.
3. Description of the software
   Provide a brief operational description of the software for the system.
4. Software Critical-Control Analysis
   Describe how and why the following items mitigate the potential hazard(s) for the SIL assigned to each software component:
   a. Software requirements—i.e., analysis, reviews, formal inspection, etc.
   b. Software design—i.e., method, tools, analysis, reviews, formal inspection, etc.
   c. Software code—i.e., language, tools, coding practices, static code analysis (e.g., flow, functional, etc.), reviews, formal inspection, etc.
   d. Testing—i.e., phases of testing, coverage of testing (e.g., paths, statements, branches, etc.), and regression testing performed following correction to defects.

   If applicable, discuss areas where alternative methods (in lieu of software) mitigate the potential hazard(s) (e.g., operating procedures, limitations, etc.).
5. Summary
   Summarize and make the claim that the software is suitable for use in the system.

4.5 Software Critical-Control Reviews

4.5.1 The following critical-control items must be covered at reviews specified in the SPMP:

- Hazard Analysis
- Software Critical-Control Plan
- Software Critical-Control Analysis Report

4.5.2 Reviews must include the following panel members: Software Critical-Control Engineer, Leader of the V&V Team, Systems Engineer, Requester Representative, and Office of Safety and Facility Assurance Representative.

Appendix A: Definitions

Baseline: (1) A specification or product that has been formally reviewed and agreed upon that thereafter serves as the basis for further development, and that can be changed only through formal change control procedures. (2) A document or a set of such documents formally designated and fixed at a specific time during the life cycle of a configuration item [4].

Commercial-Off-The-Shelf (COTS) software: A general-purpose application, utility or system developed and sold by a company and for which a means of providing through-life support is available.

Computer system: A system containing one or more computers and associated software [4].

Configuration management: A discipline applying technical and administrative direction and surveillance to identify and document the functional and physical characteristics of a configuration item, control changes to those characteristics, record and report change processing and implementation status, and verify compliance with specified requirements [4].

Delivery: Release of a system or component to its requester or intended user.

Government-Off-The-Shelf (GOTS) software: Software developed by the Government.

Hazard Analysis: A component-by-component system evaluation where possible failures are examined to determine the probability of occurrence and resulting consequences.

Life cycle: See Software life cycle.

Log: A software engineer's file, with a unique identifier, containing software information and phase outputs. A Log may be a developer's notebook or electronic file.

Low-control software: Software that has limited or no maintenance. The software and/or resulting data may be delivered to requesters external to the developing organization.

Maintenance: The process of modifying a software system or component after delivery to correct faults, improve performance or other attributes, or adapt to a changed environment [4].

Peer review: A review of a software work product, following defined procedures, by peers of the producers of the product for the purpose of identifying defects and improvements [19].

Phase: A major segment of work in the software development process, for example: requester requirements, software requirements, architectural design, detailed design, coding and testing, qualification-testing, acceptance, operations, and maintenance.

Requester: The person responsible for funding the software project and receiving project deliverables. The IEEE standards use the term "customer" to refer to requester.

Software: Computer programs, procedures, and possibly associated documentation and data pertaining to the operation of a computer system [4]. Examples include code, code generated using CASE tools, databases, graphical user interfaces, object libraries, mathematical or data analysis packages, and requirements, design, and test documents.

Software Configuration Manager: The individual responsible for development of the Software Configuration Management Plan and ensuring it is executed.

Software critical-control analysis: An activity in which system or software requirements, software design, and software code are examined to identify defects that have a potential to cause or contribute to system hazards.

Software Critical-Control Engineer: A software engineer who applies safety engineering principles to the formulation, design, development, testing, and documentation of software.

Software Engineer: A member of the software technical staff who applies engineering principles to the formulation, design, development, testing, operations, and maintenance of software.

Software Engineering Process Group (SEPG): A group of specialists who facilitate the definition, maintenance, and improvement of the software process used by the organization [19].

Software life cycle: The period of time that begins when a software product is conceived and ends when the software is no longer available for use. The software life cycle typically includes a concept phase, requirements phase, design phase, implementation phase, test phase, installation and checkout phase, operation and maintenance phase, and sometimes, retirement phase. Note: These phases may overlap or be performed iteratively [4].

Software Manager: The individual with overall responsibility for planning, control, and delivery of a software project.

Software metric: 1) A quantitative measure of the degree to which a system component or process possesses a given attribute; or 2) a measurable indication of some quantitative aspect of a software project; (e.g., size, cost, risk, time).

Software project: A number of specified activities encompassing the acquisition, supply, development, operations, or maintenance of software. A software project may be 1) a project in its own right, or 2) a subproject of a parent project.

Software Project Management Plan (SPMP): A document which covers the totality of a software project from start to finish and describes the objectives and deliverables, the approach to be taken, the controls employed, the activities and milestones, and the resources to be used.

Software Project Team: The personnel assigned to a project, who design, code, unit test, and document software.

Supervisor: An individual whom higher management has given responsibility and authority for assigning workforce, managing facilities, and reviewing work plans for technical accuracy and validity.

Validation: The process of evaluating a system or component during or at the end of the development process to determine whether it satisfies specified requirements [4].

Verification: 1) The process of evaluating a system or component to determine whether the products of a given phase satisfy the conditions imposed at the start of that phase. 2) Formal proof of program correctness [4].

V&V Team: The personnel assigned to a project who review testing of software and prepare and conduct plans to determine that software operates correctly (i.e., verify) and operates according to requirements (i.e., validate).

Appendix B: References

1 Guidance on LMS Software Procedures. (URL: http://sw-eng.larc.nasa.gov/process/)

2 Software Project Management Plan Guidance. (URL: http://sw-eng.larc.nasa.gov/process/)

3 LaRC Software Process Improvement Initiative web site. (Contains information on the LaRC software practices, contacts, discussion groups, etc.) (URL: http://sw-eng.larc.nasa.gov/)

4 IEEE Standard 610.12-1990, IEEE Standard Glossary of Software Engineering Terminology.

5 IEEE Standard 1058.1-1997, IEEE Standard for Software Project Management Plans.

6 IEEE Standard 1062-1993, Recommended Practice for Software Acquisition.

7 IEEE Standard 1219-1998, IEEE Standard for Software Maintenance.

8 IEEE/EIA Standard 12207.0-1996, IEEE/EIA Standard, Industry Implementation of International Standard ISO/IEC 12207: 1995, Standard for Information Technology—Software Life Cycle Processes.

9 IEEE/EIA Standard 12207.1-1997, IEEE/EIA Standard, Industry Implementation of International Standard ISO/IEC 12207: 1995, Standard for Information Technology—Software Life Cycle Processes—Life Cycle Data.

10 NASA Policy Directive 2210, October 1997, External Release of NASA Software. (URL: http://nodis.hq.nasa.gov/Library/Directives/NASA-WIDE/Policies/Legal_Policies/N_PD_2210_1.html)

11 NASA Policy Directive 2820.1, May 1998, NASA Software Policies. (URL: http://nodis.hq.nasa.gov/Library/Directives/NASA-WIDE/Policies/Legal_Policies/N_PD_2820_1.html)

12 NASA-STD-2100-91 NASA Software Documentation Standard, 1991. (URL http://satc.gsfc.nasa.gov/assure/docstd.html)

13 NASA Procedures and Guidelines 7120.5a, NASA Program and Project Management Processes and Requirements, April 3, 1998. (See URL: http://nodis.hq.nasa.gov/Library/Directives/NASA-WIDE/Procedures/Program_Formulation/N_PG_7120_5A.html)

14 NASA-GB-001-96, Software Program, Software Management Guidebook. (URL: http://www.ivv.nasa.gov/SWG/resources/index.html)

15 NASA-GB-1740.13-96, NASA Guidebook for Safety Critical Software — Analysis and Development. (URL: http://www.ivv.nasa.gov/SWG/resources/SWG_safety.html)

16 Instructional Handbook for Formal Inspections. (URL: http://sw-eng.larc.nasa.gov/process/)

17 NASA Continuous Risk Management Course taught by the Software Assurance Technology Center, NASA Goddard Space Flight Center, NASA-GSFC-SATC-98-001.

18 *Software Engineering Guides*, C Mazza et al., Prentice Hall (1996), ISBN 0-13-449281-1.

19 Software Engineering Institute at Carnegie Mellon University, *The Capability Maturity Model: Guidelines for Improving the Software Process*, Addison-Wesley (1994), ISBN 0-201-54664-7.

20 Software Engineering Institute at Carnegie Mellon University, *Continuous Risk Management Guidebook*, 1996, NTIS#: AD-A319533KKG, DTIC#: AD-A319 533\6\XAB.

Note: The IEEE references listed in this appendix can be obtained through URL: http://sw-eng.larc.nasa.gov/larconly/ieee.html

ATTACHMENT 7

Distribution of ARTS and SAERS Employees by NASA LaRC Building Number

Current SAERS and ART Employee Distribution by NASA Building Number

B644 – 2 employees	B1229 – 1 employee
B645A – 3 employees	B1229A – 1 employee
B647 – 1 employee	B1230 – 11 employees
B1130T3 – 4 employees	B1230B – 4 employees
B1146 – 5 employees	B1232 – 15 employees
B1146B – 1 employee	B1232T2 – 6 employees
B1148 – 4 employees	B1236 – 7 employees
B1159 – 1 employee	B1237T1 – 10 employees
B1162 – 1 employee	B1237T2 – 23 employees
B1192E – 1 employee	B1244 – 38 employees
B1200 – 7 employees	B1244C – 4 employees
B1202 – 15 employees	B1247B – 2 employees
B1205 – 13 employees	B1251 – 3 employees
B1208 – 2 employees	B1255 – 1 employee
B1208A – 2 employees	B1265 – 3 employees
B1212 – 3 employees	B1267 – 2 employees
B1219 – 2 employees	B1268A – 1 employee
B1220 – 7 employees	B1268B – 3 employees
B1221 – 2 employees	B1293 – 2 employees
B1221B – 2 employees	B1294 – 1 employee
B1221C – 1 employee	B1298 – 17 employees
B1224 – 36 employees	B1299 – 12 employees
B1225 – 2 employees	Offsite –5 employees