George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

Safety and Mission Assurance Mission Services at the Marshall Space Flight Center

REQUEST FOR PROPOSAL (RFP) 8-1-0-QS-C5853

Responses to individual comments will not be provided by the Government. Any changes to this document will be made via written amendment. Prospective Offerors should monitor the NASA Acquisition Internet Service (NAIS) for the latest information regarding this solicitation.

Date of Issue: March 8, 2000

Proposal Volumes I, II, and IV due April 24, 2000 (See L.12 (c)1.B.).
Proposal Volume III due March 22, 2000 (See L.12 (c)1.B.).

NOTICE: This Procurement is a 100% Small Business Set-Aside

For Contract
NAS8-00179

OMB APPROVAL #: 9000-0008

SOLICITATION, OFFER AND AWARD

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) ▶ | ...ING DO-C9 | PAGE OF 1 | PAGES 202

2. CONTRACT NO.	3. SOLICITATION NO.	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NO.
	8-1-0-QS-C5853	☐ SEALED BID (IFB) ☒ NEGOTIATED (RFP)	March 8, 2000	1-0-QS-C5853

7. ISSUED BY: CODE PS20

Procurement Office
George C. Marshall Space Flight Center
National Aeronautics and Space Administration
Marshall Space Flight Center, AL 35812

8. ADDRESS OFFER TO *(If other than item 7)*

Same as Block 7.
Attention: PS20/David G. Morgan

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

SOLICITATION

9. Sealed offers in original and 10 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 See Section L.12(c)1.B. CAUTION – LATE Submissions, Modification, and Withdrawls: 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)*			C. E-MAIL ADDRESS
		AREA CODE	NUMBER	EXT.	
	David G. Morgan	256	961-2105	2105	david.morgan@msfc.nasa.gov

11. TABLE OF CONTENTS

(✓)	SEC.	DESCRIPTION	PAGE(S)	(✓)	SEC.	DESCRIPTION	PAGE(S)
		PART I – THE SCHEDULE				PART II – CONTRACT CLAUSES	
	A	SOLICITATION/CONTRACT FORM	1		I	CONTRACT CLAUSES	16
	B	SUPPLIES OR SERVICES AND PRICES/COSTS	5			PART III – LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS	
	C	DESCRIPTIONS/SPECS./WORK STATEMENTS	2		J	LIST OF ATTACHMENTS	98
	D	PACKAGING AND MARKING	1			PART IV – REPRESENTATIONS AND INSTRUCTIONS	
	E	INSPECTION AND ACCEPTANCE	1		K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	13
	F	DELIVERIES OR PERFORMANCE	2				
	G	CONTRACT ADMINISTRATION DATA	9		L	INSTRS., CONDS., AND NOTICES TO OFFERORS	40
	H	SPECIAL CONTRACT REQUIREMENTS	7		M	EVALUATION FACTORS FOR AWARD	7

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 _180___ 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 0%	20 CALENDAR DAYS 0%	30 CALENDAR DAYS 0%	CALENDAR DAYS %

14. ACKNOWLEDGMENT OF AMENDMENTS *(The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated:)*	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE
	1	3/13/00	4	4/17/00
	2	3/20/00		
	3	3/27/00		

15A. NAME AND ADDRESS OF OFFEROR
CODE ____ FACILITY ____
Hernandez Engineering, Inc.
17625 El Camino Real, Suite 200
Houston, Texas 77058

16. NAME AND TITLE OF PERSON AUTH. TO SIGN OFFER *(Type or print)*
Miguel A. Hernandez, Jr.

15B. TELEPHONE NO.			15C. CHECK IF REMITTANCE ADDRESS IS	17. SIGNATURE	18. OFFER DATE
AREA CODE	NUMBER	EXT.	☒ DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE		4/24/00
281	280-5159				

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 RS23
Accounting Operations Office
George C. Marshall Space Flight Center, NASA
Marshall Space Flight Center, AL 35812
Automated Invoice Payment Information: (256) 544-5566

26. NAME OF CONTRACTING OFFICER *(Type or print)*	27. UNITED STATES OF AMERICA *(Signature of Contracting Officer)*	28. AWARD DATE

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

SECTION B

SUPPLIES OR SERVICES AND PRICES/COSTS

B.1 SUPPLIES AND/OR SERVICES TO BE FURNISHED

The Contractor shall provide all resources (except as may be expressly stated in this contract as furnished by the Government) necessary to furnish the items below in accordance with the Description/Specifications/Work Statement in Section J.

Provide Safety and Mission Assurance Mission Services to the George C. Marshall Space Flight Center.

(End of clause)

B.2 CONTRACT COST AND FEES

(a) This is a Cost-Plus-Award Fee (CPAF) Contract. The Estimated Cost and related fees are applicable to and payable for the performance of all work under this Contract as set forth in (b) below.

(b) A summary of the estimated cost and fees for the performance of work under this contract is as follows:

	Previous Amount	Adjustment This Mod	New Total
Estimated Cost	$ 0	$ 5,289,328	$ 5,289.328
Potential Award Fee			
Performance Evaluation Fee (60%)	$ 0	$ 194,224	$ 194,224
Metrics Evaluation Fee (40%)	$ 0	$ 129,483	$ 129,483
Total Contract Value	$ 0	$ 5,613,035	$ 5,613,035

(c) Estimated cost and fees applicable to each option period are set forth below:

Option No.	Period Covered	Estimated Cost	Potential Performance Evaluation Fee	Potential Metrics Evaluation Fee	Total Option Value
1	08/15/01—08/14/02	$ 5,092,885	$ 187,011	$ 124,674	$ 5,404,570
2	08/15/02—08/14/03	$ 5,037,889	$ 184,991	$ 123,328	$ 5,346,208
3	08/15/03—08/14/04	$ 5,148,093	$ 189,038	$ 126,025	$ 5,463,156
4	08/15/04—08/14/05	$ 5,302,589	$ 194,711	$ 129,807	$ 5,627,107

(End of clause)

B.3 AWARD FEE FOR SERVICE CONTRACTS (1852.216-76)(MAR 1998)

(a) The Contractor can earn award fee from a minimum of zero dollars to the maximum stated in NASA FAR Supplement clause 1852.216-85, "Estimated Cost and Award Fee" in this contract.

(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 shall 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 Performance Evaluation Plan set forth in J-4. 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 MSFC Accounting Operations Office will make payment via unilateral modification executed by the contracting officer.

(d) After 85% 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 in the following tables. Award fee which is not earned in an evaluation period cannot be reallocated to future evaluation periods.

Summary of Potential and Earned Award Fees

1. Summary of Potential and Earned Performance Evaluation Fee

Award Fee Period	Original Amount Available	New Amount	Performance Eval. Fee Earned	Mod. No.
1.	$ 97,112	$	$	
2.	$ 97,112	$	$	
3.	$ 93,506	$	$	
4.	$ 93,505	$	$	
5.	$ 92,496	$	$	
6.	$ 92,495	$	$	

7.	$ 94,519	$	$
8.	$ 94,519	$	$
9.	$ 97,356	$	$
10.	$ 97,355	$	$
TOTAL AWARD FEE POOL	$ 949,975	$	$

2. Summary of Potential and Earned Metrics Evaluation Fee

Award Fee Period	Original Amount Available	New Amount	Metrics Evaluation Fee Earned	Mod. No.
1.	$ 64,742	$	$	
2.	$ 64,741	$	$	
3.	$ 62,337	$	$	
4.	$ 62,337	$	$	
5.	$ 61,664	$	$	
6.	$ 61,664	$	$	
7.	$ 63,013	$	$	
8.	$ 63,012	$	$	
9.	$ 64,904	$	$	
10.	$ 64,903	$	$	
TOTAL AWARD FEE POOL	$ 633,317	$	$	

(f)(1) Provisional award fee payments will be made under this contract pending the determination of the amount of fee earned for an evaluation period. If applicable, provisional award fee payments will be made to the Contractor on a monthly basis. The total amount of award fee available in an evaluation period that will be provisionally paid is the lesser of 75% of the maximum potential award fee or the prior periods evaluation score.

(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 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.

(End of clause)

B.4 PREMIUM FOR SCHEDULED OVERTIME (MSFC 52.222-93) (AUG 1988)

Pursuant to the clause entitled "Payment for Overtime Premiums," the amount of overtime premium authorized shall not exceed the amount specified below for the indicated period.

Amount	Period
$ 19,849	8/15/00 - 8/14/01
$ 20,417	8/15/01 - 8/14/02
$ 21,018	8/15/02 - 8/14/03
$ 21,649	8/15/03 - 8/14/04
$ 22,314	8/15/04 - 8/14/05

(End of clause)

B.5 CONTRACT FUNDING (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 efforts required under Sections A through J inclusive of this Contract and covers the estimated period of performance through _____.

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

(c) Recapitulation of funding is as follows:

Category	Previous Amount	Adjustment This Mod.	New Amount
Estimated Cost	$	$	$
Earned Award Fee			
Performance Evaluation Fee			
Metrics Evaluation Fee			
Total Sum Allotted	$	$	$

(End of clause)

B.6 ALLOWABLE ITEMS OF COST (MSFC※ 52.242-93)(AUG 1991)

(a) In accordance with advance agreement between the Government and the Contractor for this Contract, allowable costs for the items listed below are subject to the ceilings shown:

Ceilings on General and Administrative Costs to include Bid and Proposal and Independent Research and Development Costs

Period Covered		Rate
Basic	08/15/00-08/14/01	5.62%
Option 1	08/15/01-08/14/02	5.62%
Option 2	08/15/02-08/14/03	5.62%
Option 3	08/15/03-08/14/04	5.62%
Option 4	08/15/04-08/14/05	5.62%

(b) It is mutually agreed that when indirect cost rate ceilings are specified, (1) the Government shall not be obligated to pay any additional amount should the final indirect cost rates exceed the negotiated ceiling rates and, (2) in the event the final indirect cost rates are less than the negotiated ceiling rates, the negotiated rates shall be reduced to conform with the lower rates.

(End of clause)

[END OF SECTION]

SECTION C

DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

C.1 DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK (MSFC 52.210-94) (MAR 1989)

The Description/Specifications/Statement of Work is Attachment J-1.

(End of clause)

C.2 GENERAL

The statement of work is stated in broad terms in order to achieve maximum required flexibility. The Contractor's obligation under this contract may include resolution of unusual or emergency situations that may occur from time to time throughout the period of performance. Work of this nature directed of the Contractor by the Government will be by "Technical Directives" from the Contracting Officer or his Representative, as further defined in G.3. Services so directed will be considered within the general scope of the contract, entirely within the Contractor's original contractual obligation, and will not constitute nor be construed as a change within the meaning of the clause of this contract entitled "Changes -- Cost Reimbursement -- Alternate II." However, if any written direction by the Government through Technical Directives is considered by the Contractor, to be outside the scope of his contractual obligation, the Contractor, before performing any effort pursuant to such Government direction, shall refer such questions to the Contracting Officer for resolution.

(End of clause)

C.3 EXCLUDED FUNCTIONS AND RESPONSIBILITIES

Functions and responsibilities directly involved or associated with the management of any MSFC laboratory or office are expressly excluded from this contract. Any instructions, directives, or orders issued under this contract involving such MSFC management functions and responsibilities shall be null and void. The following activities are representative of the

excluded functions and responsibilities that cannot be provided by the Contractor for the Government:

- Policy making or management of MSFC operations;

- Program or project management;

- Technical management of Government contracts;

- MSFC management planning, programming (including preparation of scopes of work and/or procurement requests for items to be contracted for by MSFC), budgeting, review, and analysis;

- Government purchasing, contracting, contract administration, acceptance of materials and/or performance, and pay and accounting therefor;

- Direction or supervision of other Government Contractors or Government agencies, or otherwise acting as an agent to obligate or commit MSFC in any capacity;

- Clerical and other administration-type functions required to be performed by civil service personnel; and

- Supervision of Government employees.

(End of clause)

[END OF SECTION]

SECTION D

PACKAGING AND MARKING

D.1 PACKAGING AND MARKING

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

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

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

(End of clause)

[END OF SECTION]

SECTION E

INSPECTION AND ACCEPTANCE

E.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following clause is hereby incorporated by reference:

52.246-5 Inspection of Services -- Cost-Reimbursement (Apr 1984)

(End of clause)

E.2 GOVERNMENT CONTRACT QUALITY ASSURANCE FUNCTIONS (1852.246-71) (OCT 1988)

In accordance with the Inspection clause of this contract, the final inspection and acceptance shall be performed at the George C. Marshall Space Flight Center and any other location designated by the Contracting Officer.

(End of clause)

[END OF SECTION]

SECTION F

DELIVERIES OR PERFORMANCE

F.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following clauses are hereby incorporated by reference:

52.242-10 F.O.B. Origin -- Government Bills of Lading or Prepaid Postage (Apr 1984)

52.242-15 Stop-Work Order (Aug 1989) -- Alternate I (Apr 1984)

(End of clause)

F.3 PERIOD OF PERFORMANCE

(a) The period of performance of this contract shall be from August 15, 2000 through August 14, 2001.

(b) In the event the Government elects to exercise its option(s) pursuant to the terms of this contract, the period of performance for each option shall be as set forth below:

Option No.	Period of Performance
1	08/15/01—08/14/02
2	08/15/02—08/14/03
3	08/15/03—08/14/04
4	08/15/04—08/14/05

(End of clause)

F.4 PLACE OF PERFORMANCE (MSFC 52.237-92) (AUG 1988)

The Contractor shall perform the work under this contract at the George C. Marshall Space Flight Center, and at such other locations as may be approved in writing by the Contracting Officer.

(End of clause)

F.5 OPTION TO EXTEND THE TERM OF THE CONTRACT (52.217-9) (NOV 1999)

(a) The Government may extend the term of this contract by written notice to the Contractor within the period of performance stated in F.3; provided, that the Government gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option provision.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 5 years.

(End of clause)

F.6 OPTION TO EXTEND SERVICES (52.217-8) (NOV 1999)

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within the period specified in the schedule.

(End of clause)

F.7 SECTION 10721 RATES (MSFC 52.247-94) (OCT 1988)

The Contractor shall use carriers that offer acceptable service at reduced rates (Section 10721 rates), if available.

(End of clause)

[END OF SECTION]

SECTION G

CONTRACT ADMINISTRATION DATA

G.1 SUBMISSION OF VOUCHERS FOR PAYMENT (1852.216-87) (MAR 1998)

(a) The designated billing office for cost vouchers for purposes of the Prompt Payment clause of this contract is indicated 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:

RS23/Commercial Accounting Office
George C. Marshall Space Flight Center, NASA
Marshall Space Flight Center, AL 35812

(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

RS23/Commercial Accounting Office
George C. Marshall Space Flight Center, NASA
Marshall Space Flight Center, AL 35812

(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 for 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:

RS23/Commercial Accounting Office
George C. Marshall Space Flight Center, NASA
Marshall Space Flight Center, AL 35812

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.

(End of clause)

G.2 CONTRACTOR EMPLOYEE BADGING AND EMPLOYMENT TERMINATION CLEARANCE (MSFC 52.204-90) (NOV 1999)

(a) It is anticipated that performance of the requirements of this contract will require employee access to and picture badging by the Marshall Space Flight Center. Contractor requests for badging of employees shall be by MSFC Form 1739, Contractor Badge/Decal Application. Requests for badging shall be submitted to the appointed Contracting Officer Technical Representative for completion and approval prior to processing by the MSFC Protective Services Department.

(b) The Contractor shall establish procedures to ensure that each badged employee is properly cleared in accordance with MSFC Form 383-1, "Contractor Employee Clearance Document," prior to finalization of employment termination.

(c) Requests for copies of MSFC Forms 383-1, and 1739 shall be directed to the MSFC Security Division, Marshall Space Flight Center, Alabama 35812.

(End of clause)

G.3 TECHNICAL DIRECTION (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 1842.270. "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 J of this contract.

(b) The COTR does not have the authority to, and shall not, issue any instruction 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) Constitutes a basis for any 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 instruction 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 with 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.

(End of clause)

G.4 <u>INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY (1852.245-71) (JUN 1998)</u>

(a) The Government property described in the clause at 1852.245-77, List of Installation-Accountable 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:

The Contractor shall retain responsibility for notifying cognizant property custodians of all changes in status associated with installation-provided property. All equipment users shall (1) report any missing or untagged (meeting the criteria for control) property to the cognizant property custodian; (2) notify the cognizant property custodian, supervisor, and the Installation Security Officer immediately if theft, damage, or loss of Government property is suspected; (3) ensure that installation-provided property is used only in pursuit of approved NASA programs and projects, or as otherwise authorized; (4) identify property not being actively used in pursuit of approved programs and projects; and (5) ensure that property is turned in to the Property Disposal Officer through the cognizant property custodian when no longer needed. Under no circumstances will the Contractor dispose of installation property.

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.

(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.

(End of clause)

G.5 FINANCIAL REPORTING OF NASA PROPERTY IN THE CUSTODY OF CONTRACTORS (1852.245-73) (NOV 1999)

(a) The Contractor shall submit annually a NASA Form (NF) 1018, NASA Property in the Custody of Contractors, in accordance with 1845.505-14, the instructions on the form, and subpart 1845.71, and any supplemental instructions for the current reporting period issued by NASA. Subcontractor use of NF 1018 is not required by this clause; however, the Contractor shall include data on property in the possession of subcontractors in the annual NF 1018.

(b) (1) The Contractor shall mail the original signed NF 1018 directly to the Center Deputy Chief Financial Officer, Finance.

(2) Three copies shall be submitted (through the Department of Defense (DOD) Property Administrator if contract administration has been delegated to DOD) to the following address:

PS12/Contract Property
National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812

Unless the Contractor uses the NASA NF 1018 Electronic Submission System (NESS) for report preparation and submission.

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

(d) A final report is required within 30 days after disposition of all property subject to reporting when the contract performance period is complete in accordance with (b)(1) and (2) of this clause.

(End of clause)

G.6 LIST OF INSTALLATION-ACCOUNTABLE PROPERTY AND SERVICES (1852.245-77) (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.

(a) Office space, work area space, and utilities. Government telephones are available for official purposes only; pay telephones are available for contractor employees for unofficial calls, both local and long distance.

(b) General- and special-purpose equipment, including office furniture.

(1) Equipment to be made available to the Contractor is listed in Attachment J-6. The Government retains accountability for this property under the clause at 1852.245-71, Installation-Accountable Government Property, regardless of its authorized location.

(2) If the Contractor acquires property, title to which vests in the Government pursuant to other provisions of this contract, this property also shall become accountable to the Government upon its entry into Government records as required by the clause at 1852.245-71, Installation-Accountable Government Property.

(3) 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.

(c) Supplies from stores stock.

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

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

(f) Installation service facilities:.

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

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

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

(j) 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.

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

(End of clause)

G.7 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (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

A. Classification, Grades and Rates

Classification	Grade	Hourly Rate
Secretary IV	GS-07	14.29
Secretary II	GS-05	11.54
Secretary III	GS-06	12.86
Data Clerk	GS-04	10.31
Administrative Officer	GS-09	17.48
Technical Assistant	GS-04	10.31
Programmer	GS-09	17.48
Computer Analyst	GS-11	21.15
Systems Analyst	GS-12	25.35
Quality Specialist	GS-12	25.35
Reliability Analyst	GS-12	25.35

B. Fringe Benefits (applicable to all classifications)

1. Health and Insurance

Life, accident, and health insurance and sick leave programs, 5.1 percent of basic hourly rate.

2. Holidays

a. New Year's Day
b. Martin Luther King's Birthday
c. President's Day
d. Memorial Day
e. Independence Day
f. Labor Day
g. Columbus Day
h. Veterans Day
i. Thanksgiving Day
j. Christmas Day

3. Vacation or Paid Leave

a. 2 hours of annual leave each week for an employee with less than three years of service.

b. 3 hours of annual leave each week for an employee with three but less than fifteen years of service.

b. 4 hours of annual leave each week for an employee with fifteen or more years of service.

4. Retirement

1.5 percent of basic hourly rate plus Thrift Savings Plan plus Social Security.

(End of clause)

G.8 CONTINUATION OF STD. FORM 26 DATA (MSFC 52.204-93) (AUG 1988)

Accounting and Appropriation Data

1-0-QS-C5853 S1
250-41-14-R100-QS-0-003-000-2550 800/10111 $ 25,000

(End of clause)

[END OF SECTION]

SECTION H

SPECIAL CONTRACT REQUIREMENTS

H.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following clauses are hereby incorporated by reference:

1852.208-81	Restrictions on Printing and Duplicating (Aug 1993)
1852.228-75	Minimum Insurance Coverage (Oct 1988)
1852.242-71	Travel Outside of the United States (Dec 1988)

(End of clause)

H.2 ASBESTOS MATERIAL (MSFC 52.223-90) (MAR 1993)

During performance of this contract, Contractor personnel performing work in MSFC buildings may come in contact with materials containing asbestos. MSFC Buildings 4200, 4201, 4202, 4663 and 4666 are of special concern since they are known to contain a sprayed on fire insulation on or above the ceiling, usually located on the metal or concrete structure of the buildings. These buildings and all other MSFC buildings may contain asbestos in floor tile, pipe and lagging insulation, exterior siding, roofing felt, and many other building materials. Prior to disturbing suspected asbestos material in any manner, the Contractor shall notify representatives of the Environmental Health Office, an office within the MSFC Medical Center, for guidance. Contractor shall be responsible for ensuring that all Contractor personnel working onsite are made aware of and comply with this clause.

(End of clause)

H.3 APPROVAL OF CONTRACT (52.204-1) (DEC 1989)

This contract is subject to the written approval of the Procurement Officer and shall not be binding until so approved.

(End of clause)

H.4 ORGANIZATIONAL CONFLICTS OF INTEREST

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

(b) The nature of this conflict is the following:

The S&MA Contractor, acting in a support role to the S&MA office, will be a primary source of safety, reliability, maintainability, and quality assurance (SRM&QA) analyses and will assist MSFC in the evaluation of performance of MSFC program prime Contractors and major subcontractors. The S&MA Contractor will develop SRM&QA plans and procedures; analyze MSFC program Contractors' plans, procedures and practices; and perform assessments of those prime Contractor and major subcontractor plans, procedures and practices to assure that acceptable SRM&QA requirements exist on all MSFC programs. Therefore, the S&MA Contractor will occupy a highly influential and responsible position and must not be in a position to make decisions favoring its own capabilities at the prime or major subcontractor level. Accordingly, the S&MA Contractor (including S&MA teaming partners), subcontractors, or their respective parent, subsidiary or other affiliated or successor entity shall not have a prime contract or subcontract for the delivery of flight hardware, software or mission integration services to MSFC.

(End of clause)

H.5 LIMITATION OF FUTURE CONTRACTING (1852.209-71) (DEC 1988)

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

(b) The nature of these conflicts is the following:

(1) An unfair competitive advantage; and
(2) Existence of conflicting roles that might bias the Contractor's judgement.

The S&MA Contractor, acting in a support role to the S&MA office, will be a primary source of safety, reliability, maintainability, and quality assurance (SRM&QA) analyses and will assist MSFC in the evaluation of performance of MSFC program prime Contractors and major subcontractors. The S&MA Contractor will develop SRM&QA plans and procedures; analyze MSFC program Contractors' plans, procedures and practices; and perform assessments of those prime Contractor and major subcontractor plans, procedures and practices to assure that acceptable SRM&QA requirements exist on all MSFC programs. Therefore, the S&MA Contractor will occupy a highly influential and responsible position and must not be in a position to make decisions favoring its own capabilities at the prime or subcontractor level.

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

(1) The S&MA Contractor (including S&MA teaming partners), first level subcontractors, or their respective

parent, subsidiary or other affiliated or successor entity shall not obtain a prime contract or subcontract for the delivery of flight hardware, software or mission integration services to MSFC for the life of the S&MA mission services contract. Furthermore, the S&MA Contractor (including S&MA teaming partners), subcontractors, or their respective parent, subsidiary or other affiliated or successor entity shall not engage an entity that has a prime contract or subcontract for the delivery of flight hardware, software or mission integration services to MSFC for the life of the S&MA mission services contract.

(2) 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 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.

(3) 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 these data remain proprietary or confidential, the Contractor shall protect these data from unauthorized use and disclosure and agrees not to use them to compete with those other companies.

(End of clause)

H.6 SPECIAL PROVISION FOR CONTRACT CHANGES

Due to the dynamic nature of on-going MSFC programs and projects to be supported by this effort, Appendix E of the Performance Work Statement (PWS) titled ▒Current List of MSFC Programs and Projects Requiring S&MA Support▒ is provided as a representative list only and is not to be considered all-inclusive. As such, the contractor may be required, from time to time, to provide support, as set forth in the Contract PWS, to programs and projects that may not necessarily appear on the aforementioned list.

Based upon the above, the parties agree that, notwithstanding the provisions of the Changes clause of this Contract, required support shall be provided to all programs and projects as directed and no change made under this Contract shall give rise to an equitable adjustment in the cost and fees when said ▒change▒ causes an increase or decrease of $50,000 or less in the estimated cost of this Contract. Each change shall be controlling in making this determination and such change shall

not be added to any other change(s). The parties recognize that several unrelated changes may be grouped together in a bilateral contract modification for definitization; however, the dollar value of each individual change will be controlling in determining whether or not an equitable adjustment is in order. The foregoing shall not limit the rights of either party to an equitable adjustment to the extent specifically provided for in any provision of this Contract other than the Changes Cost Reimbursement clause.

(End of clause)

H.7 SPECIAL STUDIES

(a) The Contractor shall furnish the necessary management, labor and materials necessary to perform special studies/tasks, as further defined in the Contract Performance Work Statement (PWS) that may be deemed necessary to support the overall MSFC S&MA activity.

(b) Work to be performed under this clause shall be specifically defined by means of written Technical Directives issued by the COTR and the Contracting Officer, which will be addressed to the Contractor. Each directive will contain the scope of work, period of performance desired, and such other instructions as necessary to properly define the task. In the event it takes any exception with the provisions of a Technical Directive, the Contractor shall proceed with the directive, but notify the Contracting Officer within 10 working days of receipt. Failure to notify the Contracting Officer within the stated time will constitute acceptance by the Contractor of the Technical Directive and all conditions pertaining to its issuance.

(c) A total of 1,500 full-time equivalent direct hours per year have been authorized by the Government for the performance of this work scope. An equivalent direct hour is defined as fully burdened labor and non-labor costs divided by the following amounts in the Contractor's Fiscal Year in which the costs are incurred: FY00- $18,814, FY01- $50,710, FY02- $52,218, FY03- $53,852, FY04- $55,545, FY05- $35,399 and FY06- TBD. The amounts shown are fully burdened, exclusive of fee. In the event actual burdened composite labor costs vary from the amounts shown for each period in excess of plus or minus five percent, the value of an equivalent direct hour shall be adjusted by mutual agreement of the parties hereto to more accurately reflect actual labor mix and costs. For effort performed under this provision, the Contractor shall earn fee equivalent of no more than the amount available in the award fee pool of 6.12 percent.

(d) If at any time during the performance of this contract, the Contractor has reason to believe that the total equivalent hours of effort to be furnished under this Contract will exceed the total number of hours specified, the Contractor will notify the Contracting Officer and furnish, with such notification, a new estimate of equivalent hours. The parties may then enter into negotiations to provide additional hours and for an equitable adjustment in the estimated cost and fee applicable to this clause. Upon reaching the number of equivalent hours, the Contractor shall, if necessary, expend additional hours not to exceed .5 percent of the number of hours set forth herein, and such hours shall constitute the basis for allowable cost. However, if and when additional hours are provided, the equitable adjustment shall be for all hours (including the .5 percent) in excess of the number set forth for such effort. If at the end of this contract, the equivalent hours furnished, as adjusted, are within a plus or minus .5 percent variance, no equitable adjustment shall be made in the fee for such variance. At the end of contract performance, contract cost and fees shall be adjusted by the value of any unused hours.

(End of clause)

H.8 EMERGENCY EVACUATION PROCEDURES (1852.237-70) (DEC 1988)

The Contractor shall assure that its personnel at Government facilities are familiar with the functions of the Government's emergency evacuation procedures. If requested by the Contracting Officer, the Contractor shall designate an individual or individuals as contact points to provide for efficient and rapid evacuation of the facility if and when required.

(End of clause)

H.9 SECURITY REQUIREMENTS FOR UNCLASSIFIED AUTOMATED INFORMATION RESOURCES (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:

4201 Basement Computer Room/Servers
- MSFCSMA2
- MSFCSMA3
- UPRACA
- IS09000
- SOLAR

(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 MSFC Security Guard Headquarters, Building 4312, 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) are applicable to performance of the subcontract.

(End of clause)

H.10 APPLICABILITY OF SECTION CLAUSES TO SUBCONTRACTS

In the event the Contractor enters into subcontract(s) for performance of any of the services required under the Performance Work Statement of this Contract, the Contractor hereby agrees that, in addition to all other requirements, the intent and purpose of the following contract clauses will be incorporated in any such subcontract(s):

	Title
B.4	Premium for Scheduled Overtime
B.6	Allowable Items of Cost
C.2	Excluded Functions and Responsibilities
D.1	Packaging and Marking
E.1	Inspection of Services Cost Reimbursement
F.5	Option to Extend the Term of the Contract
G.2	Contractor Employee Badging and Employment Termination Clearance
G.6	List of Installation-Accountable Property And Services
H.1	Minimum Insurance Coverage
H.2	Asbestos Material
H.4	Organizational Conflicts of Interest
H.5	Limitation of Future Contracting
H.6	Special Provision for Contract Changes
H.9	Security Requirements for Unclassified Automated Information Resources
H.11	Hazardous Material Reporting

(End of clause)

H.11 HAZARDOUS MATERIAL REPORTING

A. If during the performance of this contract, the Contractor brings any hazardous materials (hazardous as defined under the latest version of Federal Standard No. 313, including revisions adopted during the term of the contract) on-site to the Marshall Space Flight Center, a completed MSFC Form 4099 (MSFC Hazardous Material Input Sheet) shall be immediately forwarded to the address on the form. The Contractor shall be responsible for ensuring that all Contractor/subcontractor personnel are made aware of and comply with this clause.

B. Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material; or with other clauses regarding hazardous materials which may be contained in the contract.

(End of clause)

[END OF SECTION]

SECTION I

CONTRACT CLAUSES

I.1 CLAUSES INCORPORATED BY REFERENCE (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):

FAR clauses: http://www.arnet.gov/far/
NASA FAR Supplement clauses:
http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm
MSFC clauses: http://ec.msfc.nasa.gov/msfc/msfc_uni.html

(End of clause)

NOTICE: The following clauses are hereby incorporated by reference:

A. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

Clause No.	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 Subcontractor Sales to the Government (Jul 1995)
52.203-7	Anti-Kickback Procedures (Jul 1995)
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (Jan 1997)
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity (Jan 1997)
52.203-12	Limitation on Payments to Influence Certain Federal Transactions (Jun 1997)
52.204-4	Printing/Copying Double-Sided on Recycled Paper (Jun 1996)
52.208-9	Contractor Use of Mandatory Sources of Supply (Mar 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 (Jun 1999)
52.215-8	Order of Precedence--Uniform Contract Format (Oct 1997)
52.215-9	Changes or Additions to Make-Or-Buy-Program (Oct 1997)
52.215-10	Price Reduction for Defective Cost or Pricing Data (Oct 1997)
52.215-12	Subcontractor Cost or Pricing Data (Oct 1997)
52.215-14	Integrity of Unit Prices (Oct 1997) -- Alternate I (Oct 1997)
52.215-15	Pension Adjustments and Asset Reversions (Dec 1998)
52.215-17	Waiver of Facilities Capital Cost of Money (Oct 1997)
52.215-18	Reversion or Adjustment of Plans for Post-retirement Benefits (PRB) Other Than Pensions (Oct 1997)
52.215-19	Notification of Ownership Changes (Oct 1997)
52.216-7	Allowable Cost and Payment (Apr 1998)
52.219-6	Notice of Total Small Business Set-Aside (Jul 1996)
52.219-8	Utilization of Small Business Concerns (Jun 1999)
52.222-1	Notice to the Government of Labor Disputes (Feb 1997)
52.222-2	Payment for Overtime Premiums (Jul 1990) (Insert (See Section B.4) in paragraph (a))
52.222-3	Convict Labor (Aug 1996)
52.222-4	Contract Work Hours and Safety Standards -- Overtime Compensation (Jul 1995)
52.222-21	Prohibition of Segregated Facilities (Feb 1999)
52.222-26	Equal Opportunity (Feb 1999)
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 Special Disabled Veterans and Veterans of the Vietnam Era (Jan 1999)
52.222-41	Service Contract Act of 1965, As Amended (May 1989)
52.223-2	Clean Air and Water (Apr 1984)
52.223-5	Pollution Prevention and Right-to-Know Information

	(Apr 1998)
52.223-6	Drug-Free Workplace (Jan 1997)
52.223-10	Waste Reduction Program (Oct 1997)
52.223-11	Ozone-Depleting Substances (Jun 1996)
52.223-12	Refrigeration Equipment and Air Conditioners (May 1995)
52.223-14	Toxic Chemical Release Reporting (Oct 1996)
52.224-1	Privacy Act Notification (Apr 1984)
52.224-2	Privacy Act (Apr 1984)
52.225-3	Buy American Act - Supplies (Jan 1994)
52.225-11	Restrictions on Certain Foreign Purchases (Aug 1998)
52.227-1	Authorization and Consent (Jul 1995)
52.227-2	Notice and Assistance Regarding Patent and Copyright Infringement (Aug 1996)
52.227-14	Rights in Data -- General (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) (Insert 30th day in subparagraph (b)(1))
52.232-34	Payment by Electronic Funds Transfer-Other than Central Contractor Registration (May 1999) (Insert " no later than 15 days prior to submission of the first request for payment" in subparagraph (b)(1).)
52.233-1	Disputes (Dec 1998) -- Alternate I (Dec 1991)
52.233-3	Protest After Award (Aug 1996) -- Alternate I (Jun 1985)
52.237-2	Protection of Government Buildings, Equipment, and Vegetation (Apr 1984)
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 Cost (Oct 1995)
52.242-4	Certification of Final Indirect Cost (Jan 1997)
52.242-13	Bankruptcy (Jul 1995)
52.243-2	Changes -- Cost-Reimbursement (Aug 1987) -- Alternate II (Apr 1984)

52.244-2	Subcontracts (Aug 1998) -- Alternate I (Aug 1998) (Insert "TBD" in paragraph (e). Insert "TBD" in paragraph (k).)
52.244-5	Competition in Subcontracting (Dec 1996)
52.245-1	Property Records (Apr 1984)
52.246-25	Limitation of Liability - Services (Feb 1997)
52.247-1	Commercial Bill of Lading Notations (Apr 1984)
52.248-1	Value Engineering (Nov 1999)
52.249-6	Termination (Cost-Reimbursement) (Sep 1996)
52.249-14	Excusable Delays (Apr 1984)
52.251-1	Government Supply Sources (Apr 1984)
52.253-1	Computer Generated Forms (Jan 1991)

B. NASA/FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

Clause No.	Title
1852.215-84	Ombudsman (Oct 1996) (Insert MSFC Ombudsman Sidney P. Saucier (256) 544-1919)
1852.216-89	Assignment and Release Forms (Jul 1997)
1852.219-74	Use of Rural Area Small Businesses (Sep 1990)
1852.219-75	Small Business Subcontracting Reporting (May 1999)
1852.219-76	NASA 8 Percent Goal (Jul 1997)
1852.219-77	NASA Mentor-Protege Program (May 1999)
1852.223-70	Safety and Health (Mar 1997)
1852.242-72	Observance of Legal Holidays (Aug 1992) -- Alternate I (Sep 1989)
1852.242-73	NASA Contractor Financial Management Reporting (Jul 1997)
1852.243-71	Shared Savings (Mar 1997)
1852.245-70	Contractor Requests for Government-Owned Equipment (Jul 1997)

I.2 REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS OR QUOTERS INCORPORATED BY REFERENCE (MSFC 52.252-91) (AUG 1988)

The Representations, Certifications, and Other Statements of Offerors or Quoters (Section K of the solicitation document) as completed by the Contractor are hereby incorporated in their entirety by reference, with the same force and effect as if they were given in full text.

(End of clause)

I.3 FULL TEXT CLAUSES ATTACHED

Clause No.	Title
52.215-21	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data -- Modifications (Oct 1997) -- Alternate II (Oct 1997)
52.219-14	Limitations on Subcontracting (Dec 1996)
52.223-3	Hazardous Material Identification and Material Safety Data (Jan 1997) - Alternate I (July 1995)
52.237-3	Continuity of Services (Jan 1991)
52.245-5	Government Property (Cost-Reimbursement, Time-and-Materials, or Labor-Hour Contracts) (Jan 1986) (DEVIATION) (Jul 1995)
52.252-6	Authorized Deviations in Clauses (Apr 1984)

(End of clause)

52.215-21 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA -- MODIFICATIONS (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 prepared 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.

(End of clause)

52.219-14 LIMITATIONS ON SUBCONTRACTING (DEC 1996)

(a) This clause does not apply to the unrestricted portion of a partial set-aside.

(b) By submission of an offer and execution of a contract, the Offeror/Contractor agrees that in performance of the contract in the case of a contract for--

(1) Services (except construction). At least 50 percent of the cost of contract performance incurred for personnel shall be expended for employees of the concern.

(2) Supplies (other than procurement from a non-manufacturer of such supplies). The concern shall perform work for at least 50 percent of the cost of manufacturing the supplies, not including the cost of materials.

(3) General construction. The concern will perform at least 15 percent of the cost of the contract, not including the cost of materials, with its own employees.

(4) Construction by special trade contractors. The concern will perform at least 25 percent of the cost of the contract, not including the cost of materials, with its own employees.

(End of clause)

52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (JAN 1997)-ALTERNATE I (JULY 1995)

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

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

Material
(If none, insert "None") Identification No.

_____ _____

_____ _____

_____ _____

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

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

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

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

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

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

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

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

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

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

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

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

(End of clause)

Alternate I (July 1995). If the contract is awarded by an agency other than the Department of Defense, add the following paragraph (i) to the basic clause:

(i) Except as provided in paragraph (i)(2), the Contractor shall prepare and submit a sufficient number of Material Safety Data Sheets (MSDS's), meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous materials identified in paragraph (b) of this clause.

(1) For items shipped to consignees, the Contractor shall include a copy of the MSDS's with the packing list or other suitable shipping document which accompanies each shipment. Alternatively, the Contractor is permitted to transmit MSDS's to consignees in advance of receipt of shipments by consignees, if authorized in writing by the Contracting Officer.

(2) For items shipped to consignees identified by mailing address as agency depots, distribution centers or customer supply centers, the Contractor shall provide one copy of the MSDS's in or on each shipping container. If affixed to the outside of each container, the MSDS's must be placed in a weather resistant envelope.

52.223-9 CERTIFICATION AND ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA DESIGNATED ITEMS (OCT 1997)

(a) As required by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6962(j)(2)(C)), the Contractor shall execute the following certification:

CERTIFICATION

I, _____ (name of certifier), am an officer or employee responsible for the performance of this contract and hereby certify that the percentage of recovered material content for EPA Designated Items was at least the amount required by the applicable contract specifications.

_____

[Signature of the Officer or Employee]

_____

[Typed Name of the Officer or Employee]

_____

[Title]

_____

[Name of Company, Firm, or Organization]

_____

[Date]

(End of certification)

(b) The Contractor also shall estimate the percentage of recovered materials actually used in the performance of this contract. The estimate is in addition to the certification in paragraph (a) of this clause.

(c) The Contractor shall submit this certification and estimate upon completion of the contract to * _____ .

*To be completed in accordance with agency procedures.

(End of clause)

52.237-3 CONTINUITY OF SERVICES (JAN 1991)

(a) The Contractor recognizes that the services under this contract are vital to the Government and must be continued without interruption and that, upon contract expiration, a successor, either the Government or another Contractor, may continue them. The Contractor agrees to (1) furnish phase-in training and (2) exercise its best efforts and cooperation to effect an orderly and efficient transition to a successor.

(b) The Contractor shall, upon the Contracting Officer's written notice, (1) furnish phase-in, phase-out services for up to 90 days after this contract expires and (2) negotiate in good faith a plan with a successor to determine the nature and extent of phase-in, phase-out services required. The plan shall specify a training program and a date for transferring responsibilities for each division of work described in the plan, and shall be subject to the Contracting Officer's approval. The Contractor shall provide sufficient experienced personnel during the phase-in, phase-out period to ensure that the services called for by this contract are maintained at the required level of proficiency.

(c) The Contractor shall allow as many personnel as practicable to remain on the job to help the successor maintain the continuity and consistency of the services required by this contract. The Contractor also shall disclose necessary personnel records and allow the successor to conduct on-site interviews with these employees. If selected employees are agreeable to the change, the Contractor shall release them at a mutually agreeable date and negotiate transfer of their earned fringe benefits to the successor.

(d) The Contractor shall be reimbursed for all reasonable phase-in, phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations) and a fee (profit) not to exceed a pro rata portion of the fee (profit) under this contract.

(End of clause)

52.245-5 GOVERNMENT PROPERTY (COST-REIMBURSEMENT, TIME-AND-MATERIAL, OR LABOR-HOUR CONTRACTS) (JAN 1986) (DEVIATION) (JUL 1995)

(a) Government-furnished property.

(1) The term "Contractor's managerial personnel," as used in paragraph (g) of this clause, means any of the Contractor's directors, officers, managers, superintendents, or equivalent representatives who have supervision or direction of --

(i) All or substantially all of the Contractor's business;

(ii) All or substantially all of the Contractor's operation at any one plant, or separate location at which the contract is being performed; or

(iii) A separate and complete major industrial operation connected with performing this contract.

(2) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the Government-furnished property described in the Schedule or specifications, together with such related data and information as the Contractor may request and as may be reasonably required for the intended use of the property (hereinafter referred to as "Government-furnished property").

(3) The delivery or performance dates for this contract are based upon the expectation that Government-furnished property suitable for use will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet the contract's delivery or performance dates.

(4) If Government-furnished property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt, notify the Contracting Officer, detailing the facts, and, as directed by the Contracting Officer and at Government expense, either effect repairs or modification or return or otherwise dispose of the property. After completing the directed action and upon written request of the Contractor, the Contracting Officer shall make an equitable adjustment as provided in paragraph (h) of this clause.

(5) If Government-furnished property is not delivered to the Contractor by the required time or times, the Contracting Officer shall, upon the Contractor's timely written request, make a determination of the delay, if any, caused the Contractor and shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(b) Changes in Government-furnished property.

(1) The Contracting Officer may, by written notice, (i) decrease the Government-furnished property provided or to be provided under this contract or (ii) substitute other Government-furnished property for the property to be provided by the Government or to be acquired by the Contractor for the Government

under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct regarding the removal, shipment, or disposal of the property covered by this notice.

(2) Upon the Contractor's written request, the Contracting Officer shall make an equitable adjustment to the contract in accordance with paragraph (h) of this clause, if the Government has agreed in the Schedule to make such property available for performing this contract and there is any --

(i) Decrease or substitution in this property pursuant to subparagraph (b)(1) above; or

(ii) Withdrawal of authority to use property, if provided under any other contract or lease.

(c) Title.

(1) The Government shall retain title to all Government-furnished property.

(2) Title to all property purchased by the Contractor for which the Contractor is entitled to be reimbursed as a direct item of cost under this contract shall pass to and vest in the Government upon the vendor's delivery of such property.

(3) Title to all other property, the cost of which is reimbursable to the Contractor, shall pass to and vest in the Government upon --

(i) Issuance of the property for use in contract performance;

(ii) Commencement of processing of the property or use in contract performance; or

(iii) Reimbursement of the cost of the property by the Government, whichever occurs first.

(4) All Government-furnished property and all property acquired by the Contractor, title to which vests in the Government under this paragraph (collectively referred to as "Government property"), are subject to the provisions of this clause. Title to Government property shall not be affected by its incorporation into or attachment to any property not owned by the Government, nor shall Government property become a fixture or lose its identity as personal property by being attached to any real property.

(d) Use of Government property. The Government property shall be used only for performing this contract, unless otherwise provided in this contract or approved by the Contracting Officer.

(e) Property administration.

(1) The Contractor shall be responsible and accountable for all Government property provided under the contract and shall

comply with Federal Acquisition Regulation (FAR) Subpart 45.5, as in effect on the date of this contract.

(2) The Contractor shall establish and maintain a program for the use, maintenance, repair, protection, and preservation of Government property in accordance with sound business practice and the applicable provisions of FAR Subpart 45.5.

(3) If damage occurs to Government property, the risk of which has been assumed by the Government under this contract, the Government shall replace the items or the Contractor shall make such repairs as the Government directs. However, if the Contractor cannot effect such repairs within the time required, the Contractor shall dispose of the property as directed by the Contracting Officer. When any property for which the Government is responsible is replaced or repaired, the Contracting Officer shall make an equitable adjustment in accordance with paragraph (h) of this clause.

(f) Access. The Government and all its designees shall have access at all reasonable times to the premises in which any Government property is located for the purpose of inspecting the Government property.

(g) Limited risk of loss.

(1) The Contractor shall not be liable for loss or destruction of, or damage to, the Government property provided under this contract or for expenses incidental to such loss, destruction, or damage, except as provided in subparagraphs (2) and (3) below.

(2) The Contractor shall be responsible for loss or destruction of, or damage to, the Government property provided under this contract (including expenses incidental to such loss, destruction, or damage) --

(i) That results from a risk expressly required to be insured under this contract, but only to the extent of the insurance required to be purchased and maintained or to the extent of insurance actually purchased and maintained, whichever is greater;

(ii) That results from a risk that is in fact covered by insurance or for which the Contractor is otherwise reimbursed, but only to the extent of such insurance or reimbursement;

(iii) For which the Contractor is otherwise responsible under the express terms of this contract;

(iv) That results from willful misconduct or lack of good faith on the part of the Contractor's managerial personnel; or

(v) That results from a failure on the part of the Contractor, due to willful misconduct or lack of good faith on

the part of the Contractor's managerial personnel, to establish and administer a program or system for the control, use, protection, preservation, maintenance, and repair of Government property as required by paragraph (e) of this clause.

(3) (i) If the Contractor fails to act as provided by subdivision (g)(2)(v) above, after being notified (by certified mail addressed to one of the Contractor's managerial personnel) of the Government's disapproval, withdrawal of approval, or non-acceptance of the system or program, it shall be conclusively presumed that such failure was due to willful misconduct or lack of good faith on the part of the Contractor's managerial personnel.

(ii) In such event, any loss or destruction of, or damage to, the Government property shall be presumed to have resulted from such failure unless the Contractor can establish by clear and convincing evidence that such loss, destruction, or damage --

(A) Did not result from the Contractor's failure to maintain an approved program or system; or

(B) Occurred while an approved program or system was maintained by the Contractor.

(4) If the Contractor transfers Government property to the possession and control of a subcontractor, the transfer shall not affect the liability of the Contractor for loss or destruction of, or damage to, the property as set forth above. However, the Contractor shall require the subcontractor to assume the risk of, and be responsible for, any loss or destruction of, or damage to, the property while in the subcontractor's possession or control, except to the extent that the subcontract, with the advance approval of the Contracting Officer, relieves the subcontractor from such liability. In the absence of such approval, the subcontract shall contain appropriate provisions requiring the return of all Government property in as good condition as when received, except for reasonable wear and tear or for its use in accordance with the provisions of the prime contract.

(5) The Contractor shall notify the Contracting Officer upon loss or destruction of, or damage to, Government property provided under this contract, with the exception of low value property for which loss, damage, or destruction is reported at contract termination, completion, or when needed for continued contract performance. The Contractor shall take all reasonable action to protect the Government property from further damage, separate the damaged and undamaged Government property, put all the affected Government property in the best possible order, and furnish to the Contracting Officer a statement of --

(i) The lost, destroyed, or damaged Government property;

(ii) The time and origin of the loss, destruction, or damage;

(iii) All known interests in commingled property of which the Government property is a part; and

(iv) The insurance, if any, covering any part of or interest in such commingled property.

(6) The Contractor shall repair, renovate, and take such other action with respect to damaged Government property as the Contracting Officer directs. If the Government property is destroyed or damaged beyond practical repair, or is damaged and so commingled or combined with property of others (including the Contractor's) that separation is impractical, the Contractor may, with the approval of and subject to any conditions imposed by the Contracting Officer, sell such property for the account of the Government. Such sales may be made in order to minimize the loss to the Government, to permit the resumption of business, or to accomplish a similar purpose. The Contractor shall be entitled to an equitable adjustment in the contract price for the expenditures made in performing the obligations under this subparagraph (g)(6) in accordance with paragraph (h) of this clause. However, the Government may directly reimburse the loss and salvage organization for any of their charges. The Contracting Officer shall give due regard to the Contractor's liability under this paragraph (g) when making any such equitable adjustment.

(7) The Contractor shall not be reimbursed for, and shall not include as an item of overhead, the cost of insurance or of any reserve covering risk of loss or destruction of, or damage to, Government property, except to the extent that the Government may have expressly required the Contractor to carry such insurance under another provision of this contract.

(8) In the event the Contractor is reimbursed or otherwise compensated for any loss or destruction of, or damage to, Government property, the Contractor shall use the proceeds to repair, renovate, or replace the lost, destroyed, or damaged Government property or shall otherwise credit the proceeds to, or equitably reimburse, the Government, as directed by the Contracting Officer.

(9) The Contractor shall do nothing to prejudice the Government's rights to recover against third parties for any loss or destruction of, or damage to, Government property. Upon the request of the Contracting Officer, the Contractor shall, at the Government's expense, furnish to the Government all reasonable assistance and cooperation (including the prosecution of suit and

the execution of instruments of assignment in favor of the Government) in obtaining recovery. In addition, where a subcontractor has not been relieved from liability for any loss or destruction of, or damage to, Government property, the Contractor shall enforce for the benefit of the Government the liability of the subcontractor for such loss, destruction, or damage.

(h) Equitable adjustment. When this clause specifies an equitable adjustment, it shall be made to any affected contract provision in accordance with the procedures of the Changes clause. When appropriate, the Contracting Officer may initiate an equitable adjustment in favor of the Government. The right to an equitable adjustment shall be the Contractor's exclusive remedy. The Government shall not be liable to suit for breach of contract for --

(1) Any delay in delivery of Government-furnished property;

(2) Delivery of Government-furnished property in a condition not suitable for its intended use;

(3) A decrease in or substitution of Government-furnished property; or

(4) Failure to repair or replace Government property for which the Government is responsible.

(i) Final accounting and disposition of Government property. Upon completing this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit, in a form acceptable to the Contracting Officer, inventory schedules covering all items of Government property not consumed in performing this contract or delivered to the Government. The Contractor shall prepare for shipment, deliver f.o.b. origin, or dispose of the Government property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the cost of the work covered by this contract or paid to the Government as directed by the Contracting Officer. The foregoing provisions shall apply to scrap from Government property; provided, however, that the Contracting Officer may authorize or direct the Contractor to omit from such inventory schedules any scrap consisting of faulty castings or forgings or of cutting and processing waste, such as chips, cuttings, borings, turnings, short ends, circles, trimmings, clippings, and remnants, and to dispose of such scrap in accordance with the Contractor's normal practice and account for it as a part of general overhead or other reimbursable costs in accordance with the Contractor's established accounting procedures.

(j) Abandonment and restoration of Contractor premises. Unless otherwise provided herein, the Government --

(1) May abandon any Government property in place, at which time all obligations of the Government regarding such abandoned property shall cease; and

(2) Has no obligation to restore or rehabilitate the Contractor's premises under any circumstances (e.g., abandonment, disposition upon completion of need, or contract completion). However, if the Government-furnished property (listed in the Schedule or specifications) is withdrawn or is unsuitable for the intended use, or if other Government property is substituted, then the equitable adjustment under paragraph (h) of this clause may properly include restoration or rehabilitation costs.

(k) Communications. All communications under this clause shall be in writing.

(l) Overseas contracts. If this contract is to be performed outside the United States of America, its territories, or possessions, the words "Government" and "Government-furnished" (wherever they appear in this clause) shall be construed as "United States Government" and "United States Government-furnished," respectively.

(End of clause)

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

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

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

(End of clause)

[END OF SECTION]

SECTION J

LIST OF ATTACHMENTS

Attachments	Title	Pages
J-1	Performance Work Statement	J-1-1 - J-1-37
J-2	Reporting Requirements	J-2-1 - J-2-25
J-3	Wage Determination	J-3-1 - J-3-10
J-4	Contract Fee Evaluation Plan	J-4-1 - J-4-2
J-4A	Performance Evaluation Plan	J-4A-1 - J-4A-8
J-4B	Metrics Evaluation Plan	J-4B-1 - J-4B-11
J-5	Make-Or-Buy Plan	J-5-1
J-6	Installation-Provided Property and Services	J-6-1 - J-6-3

ATTACHMENT J-1

PERFORMANCE WORK STATEMENT

MSFC SAFETY & MISSION ASSURANCE MISSION SERVICES

TABLE OF CONTENTS

		Page Numbers
Performance Work Statement		
1.0	Mission	J-1-2
2.0	Management	J-1-3
3.0	Systems Safety Engineering Programs	J-1-6
4.0	Industrial Safety Program	J-1-9
5.0	Reliability and Maintainability Engineering	J-1-11
6.0	Quality Assurance	J-1-17
7.0	S&MA Management Information	J-1-20
8.0	Project Assurance Services	J-1-22
9.0	Independent Assurance Tasks	J-1-23
10.0	Risk Management	J-1-24
11.0	Documentation and Report Support	J-1-24
Appendix A	Acronyms	J-1-25
Appendix B	Safety and Mission Assurance Organizational Chart	J-1-29
Appendix C	Applicable Documents List	J-1-30
Appendix D	Work Breakdown Structure (WBS)	J-1-34
Appendix E	Current List of MSFC Programs and Projects Requiring S&MA Support	J-1-35

ATTACHMENT J-1

PERFORMANCE WORK STATEMENT

1.0 MISSION

The MSFC Team has accepted the goal to seek to establish the Center as number one in safety within NASA. Commitment to the core values of the Center's people and customers allows for the establishment of a highly skilled, diverse, and motivated workforce committed to safety. Working in a creative and productive environment in support of cutting-edge systems and technology development, the Center employs unique and innovative management techniques to improve safety of the public, the astronauts and pilots, the NASA workforce and high-value equipment and property. The Safety and Mission Assurance Office is committed as a part of MSFC, to preventing human injury and occupational illnesses while developing and maintaining a world class safety program. The S&MA Service Contractor shall fully support these endeavors and demonstrate the same type of commitment to a world class safety program.

The Contractor shall provide the necessary management, personnel, equipment, and supplies (not otherwise provided by the Government) required to provide mission services associated with the planning, implementation, and assessment of safety, reliability, maintainability, quality assurance, and risk management programs for the Marshall Space Flight Center Safety and Mission Assurance Office. The mission services tasks associated with each of these programs are elaborated in this Performance Work Statement (PWS). See Appendix E for a list of the current MSFC Programs and Projects requiring Safety and Mission Assurance support.

The Contractor shall perform surveillance of assigned MSFC in-house and contracted design, manufacturing, and testing activities, for both hardware and software, to assess compliance with NASA MSFC Safety, Reliability, Maintainability, and Quality Assurance

(SRM&QA) policies, requirements, and controls. The Contractor shall assure that management assessment information is provided in a timely manner to the MSFC S&MA Office to support the decision-making process regarding open problems, hazards, and risks pertaining to accomplishing MSFC's mission. This will include operation and maintenance of the S&MA Management Information Center (MIC).
The tasks described in this Performance Work Statement shall be performed principally in the MSFC locale; however, occasional travel to contractor facilities, NASA Headquarters, and other NASA installations may be required. The Contractor is required to provide one senior Quality Assurance specialist at Stanford University to support MSFC S&MA surveillance and inspection for the Gravity Probe B spacecraft. This task is scheduled to end September 30, 2001.

This Performance Work Statement as set forth is unclassified, and proposals should be submitted accordingly. However, some Contractor personnel may require access to classified documents; therefore, the selected Contractor must possess or be able to acquire a Facility Security Clearance. Security clearance, for those persons required to have such, will be obtained in accordance with the Industrial Security Manual for Safeguarding Classified Information, DOD Manual 5220.22. Contractor personnel working at MSFC must comply with pertinent MSFC security regulations.

The numbering system employed in this Performance Work Statement (PWS) corresponds to the numbering system employed in the Work Breakdown Structure (WBS) (Appendix D) that depicts this effort, however, in some sections, it is detailed to a lower level. Each PWS task describes the correspondingly numbered WBS item.

2.0 MANAGEMENT

The Contractor shall provide administrative and program management for effective direction and control of this contract. The Contractor's plan and approach for providing such management shall be documented in a Management Plan which will be prepared in accordance with DRD 875MA-001. The Contractor shall develop

management information systems which provide a means for monitoring and measuring performance and which encomp with DRD 875MA-002. Progress Reports shall be submitted in accordance with DRD 875MA-003. An On-Site Employee Location Listing shall be submitted in accordance with DRD 875CD-001.

2.1 Project Management

The Contractor shall provide planning, coordination, and surveillance of overall activities to assure disciplined performance of work and timely application of the resources necessary for completion of all tasks described in this Performance Work Statement.

2.2 Property Management

The Contractor shall comply with the MSFC Property Management Manual (Directives, MWI 4520.1 - Receiving, Handling, Packaging, Shipping, Delivery Procedures, MWI 4220.1 - Office Furniture and Furnishings Services, MWI 4200.1 - Equipment Control, MWI 4300.1 - Disposal Turn Ins/Reutilization Screening, MWI 4500.1 - Supply Management: Storage and Issue, MWI 4520.2 - Use of the Procurement Discrepancy Tracking System (PDTS), MPG 4000.2 - Property Management), Part 45 of the Federal Acquisition Regulation, and Part 18-45 of the NASA Federal Acquisition Regulation Supplement for acquisition and accountability of materials and equipment. The Contractor shall implement an inventory control system for all non-capitalized property and equipment. A Government Property Management Plan shall be provided, maintained, and implemented in accordance with DRD 875LS-001.

2.3 Occupational Safety and Health

The Contractor shall be responsible for accomplishing the required industrial/occupational safety functions in compliance with the safety requirements contained in the safety documents referenced in DRD 875SA-001. The contractor shall establish and implement a safety, health, and environmental program that incorporates the following elements as applicable to work performed under the contract (documented in the On-site Safety and Health Plan in accordance with DRD 875SA-001).

a. Management commitment and employee involvement in the safety and health program.
   1. Document worksite safety policy.
   2. Establish and communicate clear safety and health goals.
   3. Full management involvement in implementation of the safety and health program.
   4. Full employee involvement in the safety and health program.
   5. Assign and communicate responsibilities.
   6. Provide authority and resources.
   7. Provide or allow access to professional safety and health staff.
   8. Hold accountable management and employees.
   9. Conduct annual self evaluation reviews.

b. System and worksite hazard analysis.
   1. Complete and update baseline surveys.
   2. Perform analysis of new work.
   3. Perform hazard analysis of all jobs [i.e., job hazard analysis (JHA)].
   4. Conduct safety and environmental inspections (i.e., at a minimum, one per supervisor per month).
   5. Establish and maintain a hazard reporting system (MSFC's Safety Concerns Reporting System (SCRS) may be used).
   6. Investigate all mishaps and "close calls," and correct hazards.
   7. Analyze all injury, illness, and "close calls" trend data.

c. Hazard prevention and control.
   1. Establish a hazard identification process and measurements.
   2. Conduct facility and equipment maintenance.
   3. Conduct emergency preparedness planning and training (On-site contractors may use MPG 1040.3).
   4. Establish emergency medical care program.

d. Safety and health training.
   1. Train employees to identify, understand, and prevent hazards, and certify employee qualifications to perform tasks when required by OSHA Code of Federal Regulations and MWI 3410.1.

2. Train supervisors to control hazards.
3. Train managers to understand safety, health and environmental issues.

e. Environmental compliance.

1. Establish and maintain a process to procure green chemicals as required by Executive Order 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition" for current hazardous substance usage.
2. Establish and maintain procedures for reducing, reusing, and recycling of hazardous and toxic substances prior to disposal as required by the Pollution Prevention Act.
3. Establish and maintain procedures for minimizing stormwater pollution from entering the environment through inside storage, engineering controls, inspection, etc.
4. Establish and maintain procedures for ensuring that permits required by the Clean Air and Clean Water Acts are obtained for equipment and processes and that inspections, recordkeeping, and tests are performed.
5. Establish and maintain procedures for disposing of hazardous waste, controlled waste, and/or wastewater as allowed by MSFC permits.

Mishaps shall be reported to the MSFC S&MA Office in accordance with DRD 875SA-002, "Mishaps and Safety Statistics Reports."

2.4 Working Group Support, Information Exchange, and Support for Implementation of New or Revised Requirements

The Contractor shall provide the following for each of the SRM&QA functions:

a. Participation in working groups.

b. Information sharing or exchange with NASA Headquarters, other NASA Centers, and MSFC element contractors.

c. Review of and preparation of comments for drafts of new requirements documents or proposed revisions to existing requirements documents.

d. Participation in MSFC S&MA efforts to have MSFC Project Offices and their associated contractors implement new or revised requirements.

2.5 Personnel Training and Certification

Certification is required for personnel engaged in training responsibilities, processes and potentially hazardous operations during fabrication, assembly, and inspection, of flight or flight-associated hardware and buildup, and operations and maintenance of the test facilities. Personnel certification, re-certification shall be accomplished, maintained in accordance with the requirements of MWI 3410.1 "Personnel Certification Program", NHB 1700.1 (V1-B) "NASA Safety Policy and Requirements"; and applicable codes for welding, inspection, and Nondestructive Evaluation (NDE) of structural and pressure pipe welding. A Personnel Training and Certification Plan shall be provided in accordance with DRD 875MA-009.

3.0 SYSTEMS SAFETY ENGINEERING PROGRAMS

3.1 Develop and utilize any tools needed to assure that all applicable system safety requirements (e.g., Agency, Center, Program/Project, etc.) are identified for MSFC programs and projects. These should include, but not be limited to fault tree analysis, logic trees, hazard analysis trending and data search, and any other systems needed to analyze system safety information. The results of these tools should be provided to MSFC S&MA personnel with appropriate recommendations.

3.2 Assess program or project documentation (e.g., Contractor PWS, Data Requirements Documents, System Requirements Document, Contract End Item (CEI), Requirements Verification Compliance (RVC), procedures, etc.) to assure that all applicable safety requirements are included.

3.3 For in-house designs perform and/or assess and for out-of-house designs assess trade studies relative to design, Operations, or mission events to assure compliance with safety requirements and to assure safety risks are adequately identified, characterized, and mitigated.

3.4 For in-house designs prepare and/or assess and for out-of-house designs assess Safety Plans to assure compliance with applicable Agency, Center and Program safety requirements. Assess Project Plans to assure that safety is properly considered.

3.5 For in-house designs perform and/or assess and for out-of-house designs assess hazard analyses to assure that: (a) all hazards are identified and the associated risks properly characterized; (b) hazard controls satisfy applicable safety requirements and adequately mitigate safety risks; (c) safety verification requirements are clearly identified and adequate, including the clear definition of verification pass/fail criteria; and (d) the safety verification status is properly maintained in a closed loop accounting system.

3.6 Assess program or project verification plans and verification requirements (e.g., Verification Plans, RVC documents, etc.) to assure safety verification requirements are properly included. Assess test and operating procedures to assure compliance with safety controls and safety verification requirements. Assess safety verification compliance data to assure it clearly demonstrates compliance with the safety verification requirements and parent safety requirement.

3.7 Participate in (including making presentations as required) milestone reviews, safety reviews and readiness reviews to assure compliance with applicable safety requirements. Evaluate documentation and data for technical interchange meetings, design milestone reviews (e.g., PRR, PDR, CDR, DCR), safety reviews, and readiness reviews (e.g., Pre-Ship Review, FRR, PAR) to assure compliance with applicable safety requirements and consideration of safety risks.

3.8 Assess proposed changes, deviations, and waivers to project documentation to assure compliance with safety

requirements. Evaluate impacts to safety analyses, and effects on program or project risk.

3.9 Provide systems safety expertise for program and project Boards such as Configuration Control Boards, Problem Review Boards, Discipline Control Boards, Program Control Boards, etc.

3.10 Identify any adverse safety trends and promptly notify MSFC S&MA.

3.11 Provide real-time safety assessments during launch countdowns and missions.

3.12 Perform safety assessments of any issues which involve one or more of the following:

a. Operation or performance outside the expected performance range of parameters or which has not previously been experienced.
b. Discrepancies or nonconformances which affect:
   1. Configuration
   2. Certification
   3. Mission success
   4. Safety critical functions
   5. Weight in excess of two pounds (equivalent performances to orbit)
c. Adverse problem trends
d. Discrepancies or nonconformances which the operator determines requires design element analysis or assistance for resolution.
e. Unexplained anomalies or events.
f. Limit hardware life.
g. Restrict hardware or software use.
h. Affect hazard control.
i. Affect flight or ground operation procedures that are controlled by the Government.
j. Change software or hardware configurations that are controlled by the Government.
k. Allow use of hardware that does not meet performance specifications, exceeds certification limits, or surpasses time, age, cycle life limits (waivers/exceptions).
l. Affect critical hardware manufacture or repair processes.

3.13 Provide support to the MSFC Payload Safety Readiness Review Board (PSRRB) and Space Shuttle Systems Safety

Review Panel (SSRP) such as documentation distribution and review, board establishment and communication, executive secretary function, meeting action item tracking, and records retention. Perform independent "Checklist Reviews" of Safety Compliance Data Packages.

3.14 Develop and maintain metrics regarding the safety performance of MSFC programs and projects.

4.0 INDUSTRIAL SAFETY PROGRAM

4.1 Conduct safety compliance and hazardous operations inspection of MSFC facilities including research and development test facilities, laboratories, and industrial facilities and equipment (machine shops and tools, welding and material handling equipment, boilers, and offices).

4.2 Conduct site safety compliance inspection of MSFC construction sites.

4.3 Perform safety engineering evaluation of preliminary engineering reports, feasibility studies, and facility and equipment drawings and specifications to assure compliance with applicable codes and other MSFC safety program requirements.

4.4 Perform hazard analyses for ground-based activities in the MSFC locale when directed and evaluate ground safety analyses, including hazards analyses performed by others. Use state-of-the-art techniques such as safety checklists, fault tree analyses, and logic tree assessments to assure that hazards analyses are thorough and complete.

4.5 Evaluate test, checkout, and operating procedures for MSFC facilities and equipment to assure procedures will result in safe operations.

4.6 Evaluate written plans and procedures for program critical hardware (PCH) handling and transportation. Develop processes, perform engineering analysis for lifting equipment, and monitor implementation of, NASA Safety Standard for Lifting Devices and Equipment (NSS 1740.9) and participate in PCH moves as an expert advisor.

4.7 Support self-assessment of and survey all aspects of safety programs at MSFC including employee audits.

4.8 Provide required expertise/support for mishap investigations and other safety technical issues.

4.9 Participate as an expert advisor in Operational Readiness Inspections (ORI's) and Safety Review Teams to assess safety of test articles, facilities, interfaces, and test operations.

4.10 Identify and recommend improvements to the MSFC safety training program. Perform training duties for collateral duty employee training and employee general safety training on a continuing recurring basis. Execute proficiency tests for cranes, forklifts, aerial lifts, etc. for MSFC personnel.

4.11 Develop, utilize, and maintain any tools needed to assure that all applicable industrial safety requirements are identified for MSFC. These should include, but not be limited to; safety tracking systems, such as MSFC Hazardous Operations Personnel Certification (CERTRAK) (see paragraph 6.4), Construction Hazards, Employee Records of Unsafe Conditions (SCRS - Safety Concerns Reporting System), Facility Hazards (HAZTRAK), Safety Search, Mishap Reporting, Safety Bulletins, Hazard Analysis, Building Managers, ORI tracking systems, and Certified Cranes that meet the criteria for lifting PCH; and any other systems needed to track and analyze industrial safety information. The results of these tools should be provided to MSFC S&MA personnel with appropriate recommendations.

4.12 Maintain a Safety Standards Library.

4.13 Perform safety engineering assessments of explosives siting problems using methods of the NASA Explosives Safety Standard. Methodology will include definition of maximum credible events, quantitative estimation of overpressure, fragmentation, thermal effects, and destructive potential at potential exposures, and preparation of risk assessment summaries.

4.14 Develop processes for, and monitor implementation of new NASA and OSHA safety standards and requirements.

4.15 Participate in pre-construction meetings to inform contractors of safety requirements at MSFC.

4.16 The Contractor shall provide Safety Engineer and Safety Specialist expertise in support of MSFC Technology Evaluation Department (Test Areas) and Propulsion Research Center operations.

4.17 Provide expertise to help MSFC obtain and maintain certification in the OSHA Voluntary Protection Program.

4.18 The Contractor shall prepare, present, and/or distribute information related to industrial safety activities as requested.

5.0 RELIABILITY AND MAINTAINABILITY ENGINEERING

5.1 Systems Analysis

5.1.1 Prepare reliability and maintainability plans for MSFC developed designs and evaluate reliability and maintainability plans submitted by contractors. Assure that reliability and maintainability requirements are consistent with MSFC S&MA and project management direction. Support the development of FMEA/CIL's and their groundrules for in-house designs and support the assessment of FMEA/CIL's and their groundrules for out-of-house designs.

5.1.2 Evaluate changes, out-of-family conditions, material reviews, and deviations for impact to FMEA's and CIL's.

5.1.3 Evaluate project documents related to reliability and maintainability to assure consistency and adequacy with overall project requirements.

5.1.4 Evaluate OMRSD's and implementing OMI's to assure that reliability and maintainability requirements are adequately addressed and implemented.

5.1.5 Participate in project milestone reviews (PRR's, PDR's, CDR's, DCR'S, FRR's, etc.) for the purpose of evaluating the incorporation of reliability and maintainability requirements throughout the life cycle of a project (e.g., design, production, testing, and operations).

5.1.6 Prepare reliability assessments, using reliability data bases, for each mission, vehicle, and other equipment in support of preflight assessment reviews and flight readiness milestone reviews.

5.1.7 Perform design trade studies, evaluate contractor prepared trade studies, and provide reliability and maintainability assessments.

5.1.8 Evaluate contractor provided reliability and maintainability analyses, to verify the validity of the analyses and that the analyses have been performed in accordance with requirements.

5.1.9 Perform ad hoc numerical reliability and maintainability analyses using appropriate analytical methods and models without necessarily receiving detailed technical guidance from MSFC. The analytical methods may include, but not be limited to, classical probability density functions, reliability and maintainability models, Monte Carlo simulation models, etc.

5.1.10 Develop and/or evaluate FMEA's and CIL's for compliance with requirements.

5.1.11 Develop and utilize any tools needed to assure that all applicable reliability and maintainability requirements are identified for MSFC programs and projects. These should include, but not be limited to FMEA/CIL information analysis, reliability trending and assessments, maintainability trending and assessments, and any other systems needed to analyze reliability and maintainability information. The results of these tools should be provided to MSFC S&MA personnel with appropriate recommendations.

5.2 Probabilistic Risk Assessment (PRA)

Perform probabilistic risk assessments. Develop tools and techniques to assess probabilistic risk assessments. The contractor shall be able to perform PRAs as required on MSFC programs and projects. Specific tasking will include, but not be limited to reliability engineering tasks related to the NASA Headquarters initiative to develop an overall Shuttle Program Risk Model. This will include data collection related to MSFC elements (Space Shuttle Main Engine, Solid Rocket Booster, Reusable Solid Rocket Motor, and External Tank), risk model selection and risk analysis of these elements, utilization of the selected risk model(s) to be integrated into the overall Shuttle Program Model, simulation of risk scenarios using available software packages, and an overall report on the data, methods/models, and results.

5.3 Hardware/Software Assessments

5.3.1 Evaluate in-house and contractor methods for identification and control of limited life items. Verify, through assessments, that sufficient remaining life of equipment is available for accomplishing the mission objectives. Verify that life limits of common hardware are consistent.

5.3.2 Evaluate engineering and programmatic changes such as ECR's, ECP's, PCP's and SCN's for reliability and maintainability impact.

5.3.3 Evaluate in-house and contractor provided FMEA analyses of software design to assure software properly responds to critical failure modes as identified by the FMEA/CIL documents (i.e., fault detection, isolation, switching, etc.).

5.4 ALERT Program Maintenance

5.4.1 The Contractor shall receive ALERT's from MSFC S&MA and shall enter them into the ALERT database.

5.4.2 The Contractor shall also distribute ALERTS to MSFC actionees for review and disposition, track the status of the reviews, enter the results of the reviews in the ALERT database, and transmit the results of the reviews to the organizations identified in MWI 1280.5. The ALERT database shall allow tracking the status of ALERT's by project as well as by ALERT actionee. The Contractor shall ensure that the ALERT data is available real-time to users.

5.4.3 Evaluate closure rationale of out-of-family ALERTS.

5.5 Problem Assessment Center (PAC)

The Contractor shall operate the MSFC PAC in strict compliance with the MSFC PAC Operations Plan (see paragraph 5.5.1) and supplementary guidance provided by the COTR. In executing this task, the Contractor shall process incoming problem reports, coordinate the activities of the MSFC Problem Assessment System(PAS) (which provides the process by which MSFC project management and technical organizations review and close problem reports), provide official MSFC problem report data to authorized organizations and personnel, and operate and maintain (i.e., keep data current) the MSFC PRACA database.

5.5.1 Problem Assessment Center Operations Plan

The Contractor shall maintain and implement the Operations Plan for the MSFC PAC in accordance with DRD 875MA-006. The plan shall describe, in detail, the PAC activities necessary to fulfill the problem reporting requirements for each of the MSFC managed projects for which problem reporting is required.

5.5.2 Problem Report Processing

The Contractor will receive problem reports (i.e., initial reports, updates, and recommended closures) directly from hardware/software contractors via mail,

courier, facsimile machine, or direct electronic transfer (i.e., the hardware/software contractor's computer furnishes problem report data directly to the MSFC PRACA database). The Contractor shall review the incoming problem reports for accuracy, clarity, and completeness. The Contractor shall complete the problem report data fields designated for completion by the PAC and the Design Center. For problem reports submitted by hardware/software contractors who do not use the MSFC PRACA problem report format, the Contractor shall prepare an MSFC PRACA problem report form. The Contractor shall screen the incoming problem reports to identify system level problems (system level hardware is identified in Appendix B of document NSTS08126, Space Shuttle Problem Reporting and Corrective Action System Requirements). The Contractor shall maintain a complete record of each problem report submitted to the PAC.

5.5.3 Reviewing Problem Reports

The Contractor shall review the data for all coded fields as well as all text fields provided by the hardware/software contractor. This review shall address technical sufficiency as well as editorial acceptability. When a problem report is inaccurate, unclear, or incomplete, the Contractor shall contact the responsible hardware/software contractor by the most expeditious means and request correction, clarification, or supplementary information as warranted by the situation. Supplementary information may consist of backup technical data such as Engineering Change Request (ECR) documents, procedures, specifications, drawings, etc.

5.5.4 Problem Report Records

For each incoming problem report, the Contractor shall enter the required problem report data in the MSFC PRACA database unless that data is electronically transmitted directly to the MSFC PRACA database by the hardware/software contractor. The Contractor shall maintain a record of each problem report in the MSFC PRACA database. The Contractor shall also maintain a hardcopy file containing all problem reports and their associated backup information provided by the hardware/software contractor.

5.5.5 Coordinate the MSFC Problem Assessment System (PAS)

The Contractor shall coordinate the review and disposition of problem reports by the appropriate MSFC project management and technical assignees, record the actions of the assignees, and prepare and route non-concurrence letters when directed by the authorized assignees. The Contractor will coordinate the MSFC review of system level problems and record the results of the review.

5.5.6 MSFC Review and Disposition

Upon receiving either initial problem reports or recommended closures from the hardware/software contractors, the Contractor shall expeditiously distribute copies of those problem reports, including backup information, to the appropriate assignees in the MSFC project offices, and the MSFC Safety and Mission Assurance Office. The Contractor shall be responsible for maintaining current knowledge of the identities of the assignees for each project for which the PAC processes problem reports. The Contractor shall track the status of the review and disposition of each problem report and, when requested, shall assist assignees in obtaining additional information from hardware/software contractors.

5.5.7 Problem Review Board (PRB) Meetings

When a formal Problem Review Board (PRB) meeting is called, the Contractor shall prepare a proposed list of problem reports for review, schedule the meeting, prepare an agenda, and coordinate it with the hardware/software contractor, provide advanced notice to the participants, assure that the necessary support arrangements (i.e., meeting room reserved, telephone conference arranged, etc.) have been made, and provide problem report information packages to the MSFC assignees. In addition, the contractor shall provide an assessment of each problem report including related history, trends, thoroughness of report, and overall adequacy of investigation and recurrence controls. During the meeting, the Contractor shall administer the meeting, record and report status of action items assigned by the PRB, and record the PRB's disposition of the problem reports considered. Following the meeting, the Contractor shall monitor the status of action items, update the MSFC PRACA database and hardcopy files, and prepare, secure approval for, and distribute the minutes of the meeting.

5.5.8 MSFC Review of Space Shuttle System Level Problems

The Contractor shall monitor the Space Shuttle Level II Program Compliance Assurance Status System (PCASS) database to identify newly entered system level problems pertaining to the Orbiter. The Contractor shall provide these reports to the appropriate MSFC assignees and obtain their responses which will be recorded in a dedicated file and provided to the appropriate JSC organization.

5.5.9 Official MSFC Problem Report Data

The Contractor shall provide official MSFC problem report data and, if requested, basic engineering assessments of the data or answers to questions regarding the data for the following:

a. Project office sponsored flight readiness reviews as well as S&MA Office sponsored readiness reviews (i.e., CoFR, preflight assessments (PFA), Preflight Assessment Reviews).

b. Daily electronic updates for the Level II PCASS problem report database.

c. Notification to the appropriate JSC organization of newly reported system level problems submitted by MSFC project hardware/software contractors.

d. Quarterly Open Problem Lists provided in fulfillment of the requirements of DRD 875MA-007.

e. Monthly Newly Opened/Closed Problem Report Summary in fulfillment of the requirements of DRD 875MA-008.

f. Requests from NASA MSFC Civil Service organizations.

g. Requests from the Huntsville Operations Support Center (HOSC) during mission support operations.

h. Requests from other organizations upon direction from the COTR.

5.5.10 Support for the Huntsville Operations Support Center (HOSC)

The Contractor will station assessment engineers at the Problem Assessment Center (PAC) during Flight Readiness Firings (FRF), Count Down Demonstration Tests (CDDT), and mission launches (beginning with tanking at approximately T-7 hours and continuing regularly or intermittently through completion of payload missions for which there are PAC maintained databases). At the PAC, the assessment engineers will respond to requests from the HOSC for problem

information contained in the MSFC PRACA database. These requests will require extraction of problem data, structured queries of the database to produce information about groups of problems, and assessment and basic engineering analysis by assessment engineers to answer specific questions. The Contractor will notify the appropriate Program/Project S&MA representative if open problems are received which require disposition prior to launch. If necessary, the Contractor will support a PRB meeting as described in 5.5.7.

5.5.11 Problem Trending

The Contractor shall conduct ongoing statistical analyses and engineering assessments of problem trends. Problem trends may be prepared for any MSFC Project (Payloads, or Space Shuttle elements) if warranted. The format and technical content for reporting these trends shall be consistent with the NASA "Trend Analysis Handbook" (NHB 8070.5) and the NASA Standard titled "Trend Analysis Techniques" (NASA-STD-8070.5).

6.0 QUALITY ASSURANCE

6.1 Systems

6.1.1 The Contractor shall prepare, evaluate and, provide assessments of in-house and contracted quality related contractual documentation (i.e., Hardware and Software Quality Assurance (QA) Plans) including implementation instructions and procedures for MSFC QA policies and directives.

6.1.2 The Contractor shall perform periodic reviews and assessments of in-house and contracted QA instructions for compliance with NASA policy, Safety and Mission Assurance (S&MA) Office Charter, and the MSFC ISO 9000 Quality System.

6.1.3 The Contractor shall provide Quality Engineering (QE) expertise for the preparation, evaluation, and assessment of in-house and contractual documentation relative to processes (i.e., electrical, electronic, materials, and non-destructive evaluation) encountered

during the manufacturing, inspection, and test phases of projects.

6.1.4 The Contractor shall provide expertise to support the continued ISO 9000 registration at MSFC including, but not limited to, training of MSFC employees on ISO 9000, implementation plan maintenance, procedure preparation, progress monitoring, and internal audit support. The Contractor shall give advice/consultation on matters pertaining to interpretation of the ISO 9000 standard (to individual organizations as well as the MSFC Management Representative and the Implementation/Maintenance team). The Contractor shall support the Center's ISO Implementation/Maintenance team. The Contractor shall assist in Corrective Action follow-up for external and internal Audits/Surveillances. The contractor shall participate in and support Document Control Panel/Board activity for review, evaluation, and disposition of S&MA controlled documents. This activity includes the review of Organizational Issuance (OI) and related external documents under review by Center Document Control Boards (DCB's).

6.1.5 The Contractor shall participate in MSFC program, contractor, supplier, or other Government milestone reviews (i.e., PAR's, PRR's, PDR's, CDR's, DCR's, FRR's, TRR's, etc.) to evaluate the incorporation of quality assurance and certification requirements in decisions affecting design, safety, production, testing, and operation.

6.1.6 Develop and utilize any tools needed to assure that all applicable quality assurance requirements are identified for MSFC programs and projects. These should include, but not be limited to quality information analysis (including workmanship standards, specifications, procedures and documentation quality control), quality data trending and assessments, as built configuration databases, and any other systems needed to analyze quality assurance information. The results of these tools should be provided to MSFC S&MA personnel with appropriate recommendations.

6.2 <u>Process and Product Assurance</u>

6.2.1 The Contractor shall prepare and evaluate workmanship standards, specifications, procedures, and control documentation for in-house and contracted processes and purchases, utilizing the Procurement Discrepancy Tracking System (PDTS) as appropriate, used throughout all phases of the hardware and software development cycle.

6.2.2 The Contractor shall prepare and evaluate in-house inspection criteria for safety critical hardware/software characteristics and other requested characteristics. They shall also evaluate and provide written assessments on other MSFC contractor or Government Agency inspection criteria and implementation of inspections.

6.2.3 The Contractor shall provide Engineering Change Proposal (ECP) support to S&MA Configuration Control Board (CCB) members. The support provided shall consist of logging, tracking, and distributing ECP's for S&MA review, response integration, and presenting the integrated assessments to CCB's. The Contractor shall also provide support as change package engineers (CPE) as assigned.

6.2.4 The Contractor shall provide the expertise to evaluate in-house and contractual waivers and deviations for compliance with stated QA, certification requirements, standards, and policies.

6.2.5 The Contractor shall provide QE expertise to ensure the inspectability of in-house designs by performing drawing and procurement documentation review.

6.2.6 The Contractor shall provide the expertise to perform and evaluate trade studies relative to design, fabrication, inspection, testing, and operations.

6.2.7 The Contractor shall participate in the development and implementation of Quality training programs.

6.2.8 The Contractor shall prepare, evaluate, and maintain guidelines, checklists, and plans to be used in support of S&MA participation in audits of MSFC internal organizations, MSFC vendors and suppliers, and other Government Agencies and NASA Engineering and Quality Audits (NEQA). The Contractor shall maintain a status of all S&MA action items resulting from audits to ensure compliance with MSFC S&MA policies and procedures. The Contractor shall provide support to S&MA, auditors, and auditees by assisting in scheduling audits, tracking and follow-up of findings, and preparation and distribution of final reports. The Contractor shall maintain a system for retention of quality records associated with audits.

6.2.9 The Contractor shall evaluate test results versus verification requirements including the disposition of test anomalies and discrepancies for adequacy. The Contractor shall maintain the necessary certification records, files, and hardware certification status to meet project and S&MA needs.

6.2.10 The Contractor shall provide Quality Assurance expertise in support of MSFC Technology Evaluation Department (Test Areas) and other testing activities as required. The Contractor shall also provide Quality Assurance expertise in support of S&MA inspection activities.

6.2.11 The Contractor shall provide Quality Assurance personnel at Stanford for Gravity Probe B. This tasking is scheduled to end on September 30, 2001.

6.3 Problem Analysis

6.3.1 The Contractor shall, as required, advise MRB members and recommend corrective action to improve product quality. The Contractor shall also participate in the construction of trending charts and analyses on MSFC contractor and in-house efforts, and shall provide recommendations to S&MA engineers and managers on adverse MSFC contractor and in-house trends.

6.3.2 The Contractor shall participate in problem and failure investigations to determine root cause and recommend corrective action.

6.3.3 The contractor shall administer the MSFC Corrective/Preventive Action System. It shall be operated in compliance with MPG 1280.4, MSFC Corrective Action System; MPG 1280.5, MSFC Preventive Action System; and attendant MSFC work instructions. The Contractor shall screen incoming potential recurrence control action requests (RCAR's); record and track problem and preventive action status; coordinate MSFC review and disposition of RCAR's; provide official MSFC report data to authorized organizations and personnel; perform trending on related potential and screened RCAR's by failure mode and cause; and operate and maintain the MSFC CAS database. The Contractor will provide support for maintaining associated Safety and Mission Assurance (S&MA) organizational work instructions current with MSFC procedures and guidelines.

6.4 Personnel Certification Administration

The Contractor shall support the administration of the MSFC Personnel Certification Program in compliance with MWI 3410.1, Personnel Certification Program. The Contractor shall maintain a database system to record personnel certifications for MSFC and on-site contractor personnel. The Contractor shall screen certification packages for compliance with procedures and coordinate the review of the packages with the applicable MSFC Certifying Officer.

7.0 S&MA MANAGEMENT INFORMATION

7.1 The Contractor shall operate and manage an S&MA Management Information Center (MIC). The MIC shall be a virtual focal point for the presentation of refined, integrated S&MA data to include, but not limited to, the following areas: ALERTS, Metrics (Such as Stoplight Metrics and Mishap data), ABCSS (As-Built Configuration Status System), NCR (Nonconformance database for internal audits), UPRACA (Problem Reporting and Corrective Action), CAS (ISO9000 Corrective Action System), QSDN (ISO9000 Quality System Deficiency Notices), QualComm (ISO9000 Quality Comment System), S&MA OI's, CERTRACK (Certification Tracking System), ISO (Integrated Safety Data), SCRS (Safety Concerns Reporting System), and any other data or results from tools specified in this PWS.

Also, administer the S&MA delegated agency data (Defense Contracts Management Command, DCMC and United States Navy, USN), which includes annual forecasts, midyear updates, and monthly data reduction (Defense Contracts Administration Reimbursable System, DCARRS).

7.2 Participate in the effort to implement a formal structure for S&MA management information by providing support for the purpose of planning, acquisition, development, documentation and operation of the systems.

7.3 Support the preparation and/or maintenance of S&MA management information documents which include Scope/Boundary, Charter, Data Dictionary/Data Directory, Strategic Plan, Organizational Issuances (OI's), and new documents as the need is determined and they are generated.

7.4 Using accepted and proven methodologies, assess S&MA's information needs for the present and future. Investigate alternatives for identified S&MA needs. Evaluate and recommend S&MA requirements for new system enhancements or capabilities. Present S&MA management with precise descriptions and recommendations on system alternatives and improvements.

7.5 Perform structured system design activities for in-house development work and for work performed by outside contractors, and make management recommendations to S&MA. MSFC S&MA will provide overview and retain final decision-making authority over all design and development activities.

7.6 The Contractor shall ensure that all system requirements are met. If not previously provided, the contractor shall generate complete documentation for each system. This documentation shall include, but not be limited to, requirements definition, design definition, code documentation, users guides for operations personnel as well as end users, implementation plans and operations plans. Provide user support functions for S&MA. This includes, but is not limited to training, real-time help, and information assessment and retrieval.

7.7 Provide computer security risk assessments of all S&MA databases and data applications in accordance with MPG 2810.1, "Security of Information Technology". Provide security plans for all major applications in accordance with DRD 875CD-002. Appoint an employee as the Organizational Storage Media Custodian (OSMC) who will ensure that personnel, sensitive and organizational data are removed (erased) from storage media (disk) that leaves the organization.

8.0 PROJECT ASSURANCE SERVICES

Project Assurance Services shall be provided to all S&MA supported programs/projects.

8.1 S&MA Project Team Participation

8.1.1 Coordinate the Contractor S&MA activities with the S&MA
project team leads to assure the proper execution of the S&MA project requirements.

8.1.2 Serve as expert advisor on SRM&QA topics for project team meetings, technical interchange meetings, problem investigation and resolution efforts, and other routine project meetings.

8.1.3 Participate in milestone reviews, data reviews, and safety reviews.

8.1.4 Provide assessments of flight readiness in support of the S&MA input to the PAR's and the Certificate of Flight Readiness for the MSFC Shuttle elements, MSFC Payloads, and Flight Projects. This includes, but is not limited to, technical issues resolution and status of S&MA flight critical documentation (COQ's, FMEA/CIL, Hazards, etc.)

8.1.5 Track action items and issues resulting from above team meetings, milestone reviews and flight readiness activities, and recommend disposition to S&MA project team leader.

8.1.6 Participate in postflight assessment of the SRB and RSRM hardware at KSC and occasionally at the Thiokol RSRM Refurbishment Facility in Utah, as requested. Prepare assessment reports and presentations. Evaluate observations for determination of items that warrant formal problem reports.

8.2 <u>S&MA Prelaunch Assessment Center</u>

Operate the MSFC S&MA Prelaunch Assessment Center for each Prelaunch Assessment Review (PAR), PAR Tag-up and L-2 PAR Tag-up including dry runs for ET/SRB Mate Reviews and Orbiter Rollout Reviews. This task includes scheduling, data collection, preparation and distribution of MSFC S&MA presentation materials, and data exchange with JSC, KSC, and NASA HQ. In addition, serves as a member of the NASA PAR Data Coordinators Working Group.

8.3 <u>Special Studies</u>

Perform studies/tasks that require inputs from different projects/disciplines. Work to be performed will be specifically defined by means of technical directives issued by the Contracting Officer.

Upon receipt of a technical directive, the Contractor shall submit within 10 calendar days a proposed plan for accomplishing the study/task to the Contracting Officer for approval. Other required documentation shall be prepared and evaluated as specified in the

technical directive. In the event of any exception with the provisions of the technical directive, the Contractor shall follow the procedure outlined in Section G of this contract

8.4 Space Shuttle Program (SSP) Transition Support

Support SSP S&MA transition plans and their implementation to assure proper insight into operations during the contract consolidation to a single prime contract operation.

9.0 INDEPENDENT ASSURANCE TASKS

Use senior staff to perform independent assurance tasks in support of the Human Exploration and Development of Space (HEDS) Independent Assurance (IA) Office. Tasking will be given by the HEDS IA Office. Assessments supporting MSFC projects and programs may be requested by the MSFC S&MA Organization with the approval of the HEDS IA Office. IA tasks will include, but are not limited to the following:

a. Track Project/Program operations and make recommendations of potential IA topics to S&MA or HEDS IA Director and Managers as appropriate.

b. Develop and maintain IA assessment work plans.

c. Perform assessments in accordance with approved assessment plans. Coordinate with appropriate IA team members, other organizations conducting related assessments, and program/project offices while researching issues. Report significant issues or concerns developed by the assessment immediately to managers/team members and appropriate program/project personnel.

d. Develop report of analysis, observations and recommendations. This will include incorporation of any Program/Project responses to the IA observations.

e. Brief observations to S&MA Managers and appropriate Program/Project personnel.

f. Coordinate on closure of report observations and any assigned actions.

Performance of all tasking will be in accordance with the HEDS IA Implementation Plan (JSC-27456, current revision).

10.0 RISK MANAGEMENT

10.1 The Contractor shall provide expertise to support the preparation, evaluation, and assessment of in-house and contractual program and project risk management plans. This expertise may require the Contractor to develop tools and techniques to facilitate the identification/tracking/mitigation of risks and issues that may potentially negatively impact a project or program.

10.2 The Contractor shall provide recommendations and advice to S&MA engineers and managers relative to risk mitigation actions to minimize or eliminate risks.

10.3 The Contractor's risk management experts shall take the NASA HQ supplied training and become certified as Continuous Risk Management Course instructors. Once certified, the instructors shall present the two-day Continuous Risk Management Course in-house to MSFC employees (planned a minimum six times a year).

11.0 DOCUMENTATION AND REPORT SUPPORT

11.1 The contractor shall provide support in the development of plans, procedures, briefing material and other documents required in accomplishment of SRM&QA activities in accordance with DRD 875MA-005.

11.2 The contractor shall provide support to the S&MA offices with evaluations and assessments of documentation to accomplish it's mission in support of MSFC Programs and Projects. These reports shall be in accordance with DRD 875MA-004.

APPENDIX A

ACRONYMNS

ABCSS - As-Built Configuration Status System

ALERT - Acute Launch Emergency Reliability Tip (NASA version of the GIDEP report)

CAS - Corrective Action System

CCB - Configuration Control Board (also Change Control Board)

CDDT - Count Down Demonstration Test

CDR - Critical Design Review

CEI - Contract End Item

CERTRACK - Certification Tracking System

CIL - Critical Items List

CMA - Center for Mishap Abatement

CO - Contracting Officer

CoFR - Certificate of Flight Readiness

COTR - Contracting Officer's Technical Representative

CPE - Change Package Engineers

DCARS - Defense Contracts Administration Reimbursable System

DCMC - Defense Contracts Management Command

DCR - Design Certification Review

DCB - Document Control Board

DRD - Data Requirement Description

ECP - Engineering Change Proposal

ECR - Engineering Change Request

ET	- External Tank
FMEA	- Failure Mode and Effects Analysis
FRF	- Flight Readiness Firing
FRR	- Flight Readiness Review
GIDEP	- Government Industry Data Exchange Program
HEDS	- Human Exploration and Development of Space
HQ	- Headquarters
HOSC	- Huntsville Operations Support Center
IA	- Independent Assurance
JSC	- Johnson Space Center
KSC	- Kennedy Space Center
LTIR	- Lost Time Incident Rate (as defined by OSHA)
MIC	- Management Information Center
MPG	- Marshall Policy and Guidelines
MRB	- Material Review Board
MSFC	- Marshall Space Flight Center
MR/CAS	- Mishaps Reporting/Corrective Action System
MWI	- Marshall Work Instruction
NCR	- Nonconformance Report
NDE	- Nondestructive Evaluation
NEQA	- NASA Engineering and Quality Audits
NPG	- NASA Procedures and Guidelines
NSTL	- Nonsupervisory Team Lead
OCIO	- Organization's Chief Information Officer

OI	- Organization Instruction
OMI	- Operations and Maintenance Instruction
OMRSD	- Operations and Maintenance Requirements Specification Document
ORI	- Operational Readiness Inspection
OSHA	- Occupational Safety and Health Act
OSMC	- Organizational Storage Media Custodian

PAC	-	Problem Assessment Center
PAR	-	Preflight Assessment Review
PAS	-	Problem Assessment System
PCASS	-	Program Compliance Assurance Status System
PCH	-	Program Critical Hardware
PCP	-	Program Change Proposal
PDR	-	Preliminary Design Review
PFA	-	Preflight Assessment
POC	-	Point of Contact
PRA	-	Probabilistic Risk Assessment
PRACA	-	Problem Reporting and Corrective Action
PRB	-	Problem Review Board
PRISMS	-	Program Information System Mission Services
PRR	-	Preliminary Requirements Review
PSRRB	-	Payload Safety Readiness Review Board
PWS	-	Performance Work Statement
QA	-	Quality Assurance
QE	-	Quality Engineering
QSDN	-	Quality System Deficiency Notice
QualComm	-	Quality Comment System
RCAR	-	Recurrence Control Action Request
RSRM	-	Reusable Solid Rocket Motor
RVC	-	Requirements Verification Compliance

SCN - Specification Change Notice

SCRS - Safety Concerns Reporting System

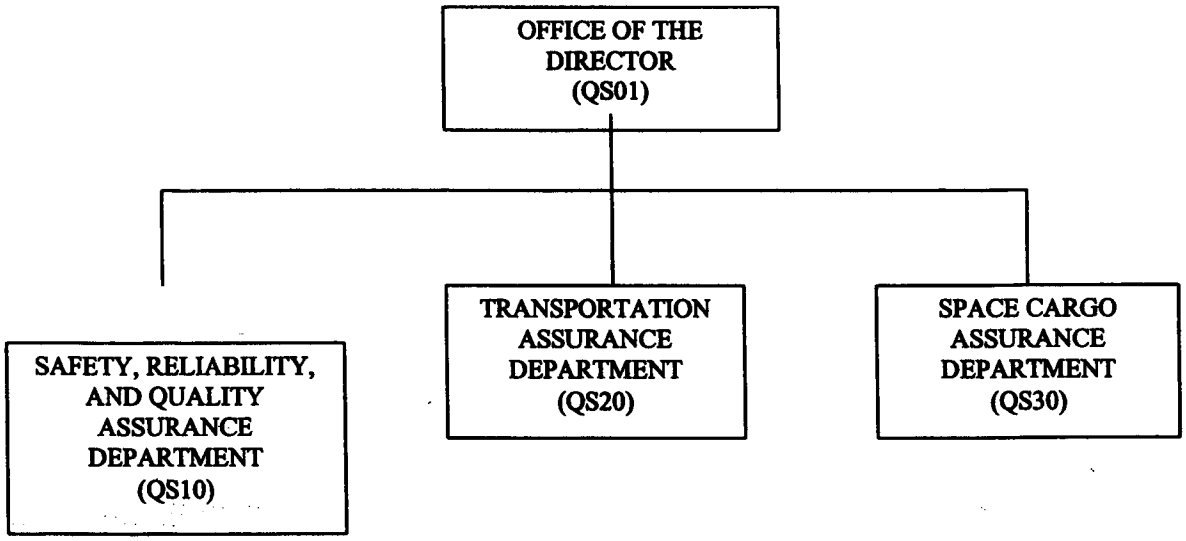
SRB - Solid Rocket Booster

SSP - Space Shuttle Program

SSRP	-	System Safety Review Panel
SRM	-	Solid Rocket Motor
S&MA	-	Safety and Mission Assurance (an MSFC organization)
SRM&QA	-	safety, reliability, maintainability and quality assurance (indicates function/discipline and not an organization entity)
TRR	-	Test Readiness Review
UPRACA	-	UNIX Problem Reporting and Corrective Action
WBS	-	Work Breakdown Structure

APPENDIX B

MARSHALL SPACE FLIGHT CENTER
SAFETY & MISSION ASSURANCE OFFICE
ORGANIZATIONAL CHART



APPENDIX C

APPLICABLE REGULATIONS, PROCEDURES, AND DOCUMENTS

The documents listed herein contain specifications to which the work must conform. The contractor shall comply with the requirements of these documents and all revisions thereto.

As a Services Contract, the contractor shall utilize all NASA and MSFC Directives and Standards as applicable, as well as Safety and Mission Assurance Organizational Issuance(s) (OIs). S&MA OIs may be found at the following URL: http://starbase.msfc.nasa.gov/directives/directives.htm. Current versions shall be utilized, unless authorization to use obsolete versions has been properly documented.

The following documents are applicable as stated in the Performance Work Statement and Data Procurement Document (875).

Executive Order 13101	*Greening the Government through Waste Prevention, Recycling, and Federal Acquisition*
FAR	*Federal Acquisition Regulation, Part 45*
Federal Standard No. 313	
NHB 5100.4A	*Federal Acquisition Regulation Supplement, (NASA/FAR Supplement) Part 18-45* and latest revisions thereto
NFS 1852.208-81	*Restrictions on Printing and Duplicating. Printing*
NFS 1852.223-70	*Safety and Health.*
NFS 1852.242-73	*NASA Contractor Financial Management Reporting,* (July 1997)
29 CFR 1910	*Department of Labor; Occupational Safety and Health Standards*
29 CFR 1926	*Department of Labor; Occupational Safety and Health Administration Standards for Construction Industry*
40 CFR	*Protection of the Environment*

ASME Boiler and Pressure Vessel Code

OMB CIRCULARS

Circular A-130 Management of Federal Resources

NASA DOCUMENTATION

NPG 1490.5	NASA Procedural Guidance for Printing, Duplicating, and Copying Management
NHB 1620.3	NASA Security Handbook
NHB 1700.1 (V1-B)	*NASA Safety Policy and Requirements Document* (to be updated to NPG 8715.2, "NASA Safety Manual Procedures and Guidelines"
NHB 1700.1 (V2)	*NASA Safety Policy and Requirements Document (Volume II)*
NSS 1740.9	*NASA Safety Standard for Lifting Devices and Equipment*
NSS 1740.11	*Safety Standard for Fire Protection* (to be updated to NASA-STD-8719.11, "Safety Standard for Fire Protection")
NPG 4100.1	NASA Materials Inventory Management Manual
NPG 4200.1	NASA Equipment Management Manual
NHB 8070.5	*Trend Analysis Handbook*
NASA-STD-8070.5	*Trend Analysis Techniques*
NPG 8621.1	*NASA Procedures and Guidelines for Mishap Reporting, Investigating, and Recordkeeping*
NPG 9501.2	NASA Contractor Financial Management Reporting

MSFC DOCUMENTATION

MPG 1040.3	*MSFC Emergency Plan*
MPG 1280.4	*MSFC Corrective Action System*
MPG 1280.5	*MSFC Preventive Action System*
MPG 1440.2	MSFC Records Management Program
MPG 1600.1	MSFC Security Procedures and Guidelines
MPG 1700.1	MSFC Industrial Safety Procedures and Guidelines(to be updated to MPG 8715.1)

MPG 1800.1	*Blood Borne Pathogens*
MPG 1810.1	*Occupational Medicine*
MPG 1840.1	*MSFC Confined Space Entry Program*

MPG 1840.2	*MSFC Hazard Communication Program*
MPG 1840.3	*MSFC Hazardous Chemicals in Laboratories Protection Program*
MPG 2500.1	Marshall Telecommunications Services
MPG 2810.1	Security of Information Technology
MPG 3410.1	*Training*
MPD 1840.1	*MSFC Environmental Health Services*
MPD 1840.2	*MSFC Hearing Conservation Program*
MPD 1840.3	*MSFC Respiratory Protection Program*
MPD 1860.1	*Laser Safety*
MPD 1860.2	*Radiation Safety Program*
MPD 2210.1	*Documentation Input and Output of the MSFC Documentation Repository*
MPD 8900.1	*Medical Operations Responsibilities for Human Space Flight Programs*
MWI 1280.5a	*MSFC ALERT Processing*
MWI 2210.1	*MSFC Documentation Repository Input/Output and Data Management Project Requests*
MWI 3410.1	*Personnel Certification Program*
MWI 3410.2	*Personnel Certification for NDE*
MM 4000.1	*MSFC Property Management Manual* (to be replaced by the following:
MWI 4520.1	*Receiving, Handling, Packaging, Shipping, Delivery Procedures*
MWI 4220.1	*Office Furniture and Furnishings Services*
MWI 4200.1	*Equipment Control*
MWI 4300.1	*Disposal Turn Ins/Reutilization Screening*
MWI 4500.1	*Supply Management: Storage and Issue*
MWI 4520.2	*Use of the Procurement Discrepancy Tracking System (PDTS)*
MPG 4000.2	*Property Management)*

MWI 5116.1	Evaluation of Contractor Performance Under Contracts with Award Fee Provisions
MWI 8621.1	*Mishap/Incident Reporting and Investigation*
MMI 6750.1	Accidents Involving Government-Owned, -Leased, and -Rented Vehicles

<u>ANSI STANDARDS applicable to the scope of this contract</u>

ANSI B31.1	*Code for Power Piping*
ANSI B31.3	*Code for Chemical Plant and Refinery Piping*
ANSI/AWS D1.1	*Structural Welding Code/Steel*
ANSI/AWS D1.2	*Structural Welding Code/Aluminum*
<u>NFPA STANDARDS</u>	*National Electrical Code* and *National Fire Code*

<u>MISCELLANEOUS POLICIES AND PROCEDURES</u>

NSTS 08126,	*Space Shuttle Problem Reporting and Corrective Action System Requirements*
SSP 30223	*International Space Station Program Problem Reporting and Corrective Action System Requirements*
JSC 27456	*Human Exploration and Development of Space (HEDS) Independent Assessment Implementation Plan*

MSFC Smoking Policy at http://www.msfc.nasa.gov/msfccwa/personel/smoke.html

APPENDIX D

WORK BREAKDOWN STRUCTURE

1.0 MISSION

2.0 MANAGEMENT

- 2.1 Project Management
- 2.2 Property Management
- 2.3 Occupational Safety and Health
- 2.4 Working Group Support, Etc.
- 2.5 Personnel Training and Certification

3.0 SYSTEMS SAFETY ENGINEERING PROGRAM

4.0 INDUSTRIAL SAFETY

5.0. RELIABILITY AND MAINTAINABILITY ENGINEERING

- 5.1 Systems Analysis
- 5.2 Probabilistic Risk Assessment
- 5.3 Hardware/Software Assessments
- 5.4 ALERT Program Maintenance
- 5.5 Problem Assessment Center

6.0 QUALITY ASSURANCE

- 6.1 Systems
- 6.2 Process and Product Assurance
- 6.3 Problem Analysis
- 6.4 Personnel Certification Administration

7.0. S&MA MANAGEMENT INFORMATION

8.0 PROJECT ASSURANCE SERVICES

- 8.1 S&MA Project Team Participation
- 8.2 S&MA Prelaunch Assessment
- 8.3 Special Studies
- 8.4 Space Shuttle Program Transition Support

9.0 INDEPENDENT ASSURANCE TASKS

10.0 RISK MANAGEMENT

11.0 DOCUMENTATION AND REPORT SUPPORT

Appendix E

Current List of MSFC Programs and Projects Requiring S&MA Support

Project Name	Project Phase	In-House Design	Out-of-House Design
Advanced Automated Directional Solidification Furnace (AADSF)	Not Active		
Aerogel	Not Act		
Advanced Study Tether Operations & Reliability Experiment (ASTOR)	Formula tion		X
Automated Rendezvous and Capture (AR&C)	Implem.	X	
Bay Thirteen Carrier	Implem.		X
Biological Research Program (BRP)	Implem.		X
Bridgman Unidirectional Dentrites in Liquids Experiments (BUNDLE)	Formula tion	X	
Burst Monitor	Formul.	X	
Crystal Growth with Baffle (CGB)	Formul.	X	
Crystal Growth by Vapor Transport (CGVT)	Formul.	X	
Comparison of Structure and Segregation in Alloys Directionally Solidified in Terrestrial and Microgravity Environments (CSS)	Formula tion	X	
Diffusion-Controlled Crystallization Apparatus for Microgravity (DCAM)	Implem ention		X
Dynamically Controlled Protein Crystal Growth (DCPCG)	Implem.		X
(DIFP/M)	Implem.	X	
Diffusion Module Insert (DMI)	Formul	X	
Diffusion Processes in Molten Semiconductors (DPIMS)	Formul.	X	
Environmental Control and Life Support System (ECLSS) VCD (Vapor Compression Distillation) Oxygen Generation System (ECLSS OGS) Water	Implem entation	X	
Recovery System (ECLSS WRS)	Implem	X	
Equiaxed Dentritic Solidificaiton Experiment (EDSE)	Formul.	X	
External Tank (ET)	Operati		X
Evolution of Local Microstructures: Spatial Instabilities of Coursing Clusters (ELMS)	Formula tion	X	
Enhanced Gaseous Nitrogen Dewar (EGN)	Implem.		X
Expedited Processing of Experiments for Space Station (EXPRESS Rack)	Implem entation		X
EXPRESS Pallet (Agreement with Brazil Pending)	Formul.		X
Frontal Polymerization in Microgravity (FPM)	Formul.	X	
FiberGLAST	Formul.		X
Flight 3A	Implem		X
Flight 6A	Implem.		X
Flight 7A	Implem.		X
Flight UF-4	Implem.		X
Glovebox Integrated Microgravity Isolation Technology (g-LIMIT)	Implemt ation	X	
Gravity Probe B (GP-B)	Implem.		X
Human Research Facility (HRF)	Implem.		X
Interim Control Module (ICM)	Implem.		X
Interferometer Protein Crystal Growth (IPCG)	Implem.	X	

Interface Pattern Formation /Pore Formation and Mobility (IPF/PFM)	Implem.		X
Interface Pattern Selection Criterion for Cellular Structures in Directional Solidification (IPSIDS)	Implem.		X
Inertial Upper Stage (IUS)	Formul.	X	
KC-135	Implem		X
Kit for External Repair of Module Impacts (KERMIT)	Implem	X	
Launch Deployment Assembly (LDA)	Implem.		X
Lab Support Equipment (LSE)	Implem.	X	
Microencapsulation Electrostatic Processing (MEPS)	Not Act		
Material Science Glovebox (MSG)	Implem.		X
Material Science Glovebox Integration (MSGI)	Implem.	X	
Material Science Research Facility (MSRF)	Implem.	X	
Microgravity Crystal Growth Demonstrator (MCGD)	Formul.	X	
Middeck Glovebox (MGBX)	Implem.	X	
Mechanics of Granular Materials (MGM)	Implem.		X
Manual Pressure Equalization Valve (MPEV)	Implem.	X	
Multi Purpose Logistics Module (MPLM)	Implem		X
Medically Relevant Macromolecules (MRM)	Formul.	X	
Material Science Research Rack (MSRR)	Implem.	X	
Node 2	Implem.		X
Nodes 3	Implem.		X
Nuclear Propulsion Demonstration Study	Formul	X	
Oxygen Generator Assembly (OGA)	Implem.		X
Oxygen Generator System (OGS)	Implem.	X	
Observable Protein Crystal Growth Apparatus (OPCGA)	Implem.		X
Protein Crystallization for Microgravity (PCAM)	Implem.		X
Protein Crystal Growth (PCG)	Implem.		X
Particle Engulfment and Pushing by Solidifying Interfaces (PEP)	Implem.		X
Portable Fan Assembly (PFA)	Implem.	X	
Propulsion Module (PM)	Implem.		X
Payload Operations and Interface Function (POIF)	Implem.		X
Payload Planning System (PPS)	Implem.	X	
Propulsive Small Expendable Deployer System (ProSEDS)	Implem.	X	
Quench Module Insert (QMI)	Implem.	X	
Rocket-based Combined Cycle	Formul		X
Sample Ampoule Cartridge Assembly (SACA)	Not Act		
Self Diffusion in Liquid Elements (SDLE)	Formul.	X	X
Spaceflight Holography Investigaion in a Virtual Apparatus (SHIVA)	Formulation	X	
SOLAR-B	Implem.	X	
Space Portable Spectroreflectometer (SPSR)	Not Act		
Space Solar Power (Concept Phase)	Formul.		X
Spacelab Ranger (Not yet manifested)	Formul.		X
Shuttle Radar Topography Mapping (Spacelab SRTM) STS-99	Implem.		X
Solid Rocket Booster (SRB)	Operati	X	
Solid Rocket Motor (SRM)	Operati		X
Space Shuttle Main Engine (SSME)	Operati		X
Single-Locker Thermal Enclosure System (STES)	Implem.		X
Small Payload Access to Space Experiments (SPASE)	Implem/ Formul.	X	
Solidification Using a Baffle in Sealed Ampoules (SUBSA)	Implem.		X
Solar X-Ray Imager (SXI)	Implem.		X

Space Transduce using Electrodynamic Propulsion (STEP/AirSEDS)	Formula iton		X
Thermal Anemometer (TA) (Hardware has been shipped)	Implem.	X	
Transient Dendritic Solidification Experiment (TDSE)	Formul.	X	
Thermal Equilibriuim and Chemical Homogenization (TEACH)	Not Act		
Thermal Enclosure System (TES)	Implem.		X
Thermophysical Property Measurements of Te-Based II-VI Semiconductor Compounts (TPTS)	Formul	X	
Urine Processor Assembly (UPA)	Implem.		X
Vapor Compression Distillation (VCD)	Implem.	X	
Vapor Diffusion Apparatus, Second Generation (VDA-II)	Not Act		
Wetting Characteristics of Immiscibles (WCI)	Formul.		X
Window Optical Research Facility (WORF)	Implem.		X
Water Processor Assembly (WPA)	Implem.		X
Water Recovery System (WRS)	Implem.	X	
X-33	Implem.		X
X-34	Implem.		X
X-37	Implem.		X
X-38/DPS	Implem.		X