National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
2101 NASA Parkway
Houston, Texas 77058-3696

November 20, 2014

Reply to Attn of: BB-14-146

TO: **PROSPECTIVE OFFERORS**

FROM: BH4/Contracting Officer

SUBJECT: Request for Proposal (RFP) NNJ15522169R – Human Health and Performance Contract (HHPC)

The National Aeronautics and Space Administration (NASA) Lyndon B. Johnson Space Center (JSC) is hereby issuing the RFP for the HHPC acquisition.

HHPC is a full and open competition and has been assigned North American Industry Classification System code 541712, Research and Development in the Physical, Engineering, and Life Sciences. The size standard under the 541712 exception for Space Vehicles and Guided Missiles, their Propulsion Units, their Propulsion Units Parts, their Auxiliary Equipment and Parts, is 1000 employees.

Offerors are advised to read all requirements contained herein and in the RFP.

The following information should be considered in proposal preparation:

ACQUISITION STRUCTURE:

The HHPC acquisition will be conducted as single award Indefinite-Delivery/Indefinite-Quantity (IDIQ) type procurement. Authorization to perform work under the HHPC contract will be through the issuance of Cost-Plus-Award-Fee Task/Delivery Orders.

The Government anticipates a 10-year period of performance comprised of a 5-year base period, one 3-year option, and one 2-year option. The phase-in period will be 62 days.

NASA plans to award Cost Reimbursement (CR) IDIQ Task/Delivery Orders in accordance with NASA Federal Supplement (NFS) 1852.216-80, TASK ORDERING PROCEDURE, to fulfill the annual requirements. The Task/Delivery Order requirements shall be priced utilizing the labor categories and proposed rates in Section B, Clause B.9, and "FULLY BURDENED RATE TABLE FOR PRICING CR TASK ORDERS."

This solicitation contains Pricing Task/Delivery Orders identified in Section L, Attachment L-3. The Government reserves the right to award the IDIQ Pricing Task/Delivery Orders as proposed, at contract start.

A Government Resource Estimate has been provided for the eight Task Orders in Attachment L-4, “Government Resources Estimate.” Additional reference information for the TOs not requiring formal response to this RFP is located in the Technical Library in the "Non-Pricing Task Orders" Section.

The Government uses "TBD" to designate a Government Fill-in and "OFI" to designate an Offeror Fill-In required for the model contract throughout the RFP.

The Government is encouraging Offerors to propose any innovations in accordance with Section L.

The HHPC acquisition may give rise to an organizational conflict of interest. Therefore, Offerors must submit an acceptable mitigation plan in accordance with DRD HHPC-MGMT-10 entitled, “Organizational Conflict of Interest Mitigation Plan,” and accept a reasonable limitation on future contracting in accordance with NFS clause 1852.209-71, “H.2 LIMITATION OF FUTURE CONTRACTING,” to be eligible for award.

Offerors are encouraged to ensure that their company is listed in the on-line database for the following:

System for Award Management (SAM): https://www.sam.gov/
Data Universal Numbering System (DUNS): http://fedgov.dnb.com/webform

Electronic Access:

An electronic Technical Library is available for various types of historical data and other pertinent applicable documents and information regarding this procurement and its requirements. The HHPC Technical Library is available at http://procurement.jsc.nasa.gov/hhpc/

Questions related to the RFP:

In order for answers to be obtained and disseminated in a timely manner, all questions or comments must be submitted in writing by December 12, 2014 at 1:30 PM CDT. If a respondent believes that their questions or comments contain confidential, proprietary, competition sensitive, or business information, those questions or comments shall be marked appropriately. However, the Government will not respond to questions that are marked as containing confidential, proprietary, competition sensitive, or business information. Comments and questions are highly encouraged and may be submitted anonymously if desired.

All questions shall be submitted in writing to roger.m.roberts@nasa.gov, john.r.carpentier@nasa.gov, and JSC-HHPC-1@mail.nasa.gov. Please title the e-mail “Questions/Comments - HHPC RFP” in the subject block. The Government will provide verification that questions have been received via email. Answers to questions will be posted to the NASA Acquisition Internet Service (NAIS) through an amendment to this solicitation.

All questions and answers in response to the RFP may be found on the HHPC acquisition website at: http://procurement.jsc.nasa.gov/hhpc/.

Questions and responses to the RFP will be separated from and have no bearing on the subsequent evaluation of proposals submitted in response to any resulting Final RFP. The use of ideas, questions, and comments to structure the Final RFP is at the discretion of the Government. Eligibility to participate in a future acquisition does not depend upon a response to this notice. The Government will not critique a potential Offeror's comments, and the RFP should not be used by Offerors to market their products/services. The RFP does not commit the Government to award a contract nor does it obligate the Government for costs incurred in the preparation and submittal of proposals in anticipation of a contract or comments in response to this RFP.

Offerors are responsible for monitoring the NASA Business Opportunities Website, http://prod.nais.nasa.gov/cgi-bin/eps/bizops.cgi?gr=D&pin=73, and the HHPC Procurement Website, http://procurement.jsc.nasa.gov/hhpc/, for any amendments to the RFP.

Where an Offeror chooses to request, from a civil servant employee at JSC, that a past performance questionnaire be submitted on its behalf for its proposed key personnel, please be advised that a Limited Communications Notice (LCN) has been issued in conjunction with this solicitation. The LCN directs that all civil service personnel at JSC shall refrain from communicating with industry on any matters related to this competitive procurement, therefore, the civil servants will be unable to provide status to the Offeror, or communicate in any other fashion with the Offeror, about the past performance request.

Enclosed with this letter is a Document Change Log which documents notable changes made to the Final RFP since the release of the Draft RFP. Although every effort was made to detail changes made, there may be some edits that are not recorded on the log. Therefore, all potential Offerors must carefully read the entire Final RFP for any potential edits.

Thank you for your participation and interest in this procurement.

Original Signed By:

Roger M. Roberts

Human Health and Performance Contract

Draft RFP to Final RFP "From-To" Changes Summary

This document provides a summary of the changes that have occurred post-release of the Draft RFP. The updates across the RFP include various editorial and administrative changes as well as changes in content, direction, and clarification. Important changes are identified below.

- **General - OVERALL GENERAL UPDATES**

The HHPC solicitation was updated to reflect the differences between the Draft RFP and the Final RFP.

- **Section B - SUPPLIES OR SERVICES AND PRICE/COSTS**

Section B includes an update to the firm-fixed-price of the Phase-In effort 62-calendar day phase-in period from July 31, 2015 through September 30, 2015.

- **Section H - SPECIAL CONTRACT REQUIREMENTS**

Section H includes the addition of 52.207-5 OPTION TO PURCHASE EQUIPMENT (FEB 1995).

- **Section I - CONTRACT CLAUSES**

Section I includes changes to contract clauses where applicable, including deletion of I.8 52.216-24 LIMITATION OF GOVERNMENT LIABILITY (APR 1984).

- **Section J - LIST OF ATTACHMENTS**

Changes were made to this section as follows:

- ✓ Attachment J-1 had several documents added to the Applicable Documents listing and added to the Technical Library.
- ✓ Attachment J-2 Data Requirements List (DRL) changes included minor updates to DRD deliverables and due dates, and major updates to DRD content and requirements for DRD-HHPC-MGMT-01 Contract Management Plan and to DRD-HHPC-MGMT-09 Technical Innovations Proposed Contract Language.
- ✓ Clarifications were provided for the J-28 laboratories and facilities.

- **Section K - REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS**

Section K includes changes to contract clauses where applicable, including deletion of 52.225-25 PROHIBITION ON CONTRACTING WITH ENTITIES ENGAGING IN CERTAIN ACTIVITIES OR TRANSACTIONS RELATING TO IRAN—REPRESENTATION AND CERTIFICATIONS (DEC 2012).

- **Section L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS and Section M - EVALUATION FACTORS FOR AWARD TO OFFERORS**

Section L and Section M changes were made to the below and covered a range of areas. Where there were changes made to Section L, any corresponding changes necessary in Section M were updated.

- ✓ Section L Basis of Estimate (BOE) was changed to cover pricing for TO-RFP-01 through 08 from CY1, to CY1through CY3 of the task orders.
- ✓ The date for the deadline to submit Past Performance information was updated to January 7, 2015.
- ✓ Section L-1 Descriptions for Standard Labor Categories were updated.
- ✓ Section L-3 Task/Delivery Orders included clarifications to descriptions and requirements principally addressing questions from industry.
- ✓ Section L.22.3.2 included clarifications and updates to the instructions for Technical Approach TA1 and TA2, reconciliation with updated cost/price instructions, and clarification of instructions related to incorporation of innovations.
- ✓ Section L.22.5 including clarification to the pricing methodology, direct labor rates and instructions for filling out the Technical Template Instructions (TRT, TRST) and Cost Template Instructions (ISCT – TO).
- ✓ Section L.22.5 updates included changes to Total Compensation Templates, Incumbency Assumptions (TC (e)) and the Cognizant Audit Office Template (CAOT).
- ✓ Section L Volume III Cost/Price value for defining a minor subcontractor was updated.
- ✓ Section M.4 Mission Suitability changes included updates to the Management and Technical evaluation criteria.
- ✓ Section M.6 Past Performance included updated definitions to correspond to the latest NASA requirements.
- ✓ Section M.7 Responsibility Considerations (Volume IV) was added.

SOLICITATION, OFFER AND AWARD	1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)	RATING DO-C9	PAGES 1325

2. CONTRACT NO.	3. SOLICITATION NO.	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NO.
NNJ15HK11	NNJ15522169R	☐ SEALED BID (IFB) ☒ NEGOTIATED (RFP)	11-20-14	

7. ISSUED BY	CODE JSC	8. ADDRESS OFFER TO *(If other than Item 7)*
NASA/Johnson Space Center BH4/Roger M. Roberts, Contracting Officer 2101 NASA Parkway Houston, TX 77058		(Refer to Section L of this solicitation)

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

SOLICITATION

9. Refer to Section L of this solicitation for guidance on proposal preparation.

All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(NO COLLECT CALLS)* AREA CODE	NUMBER	EXT.	C. EMAIL ADDRESS
	Roger M. Roberts	**281**	**483-2916**		**roger.m.roberts@nasa.gov**

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OFFER *(Must be fully completed by offeror)*

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

12. In compliance with the above, the undersigned agrees, if this offer is accepted within 365 calendar days *(60 calendar days unless a different period is inserted by the offeror) from* the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT *(See Section I, clause No. 52-232-8)*	10 CALENDAR DAYS	20 CALENDAR DAYS	30 CALENDAR DAYS	CALENDAR DAYS
	365	%	%	%

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

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

15B. TELEPHONE NO. *(Include area code)*	15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE – ENTER ☐ SUCH ADDRESS IN SCHEDULE	17. SIGNATURE	18. OFFER DATE

AWARD *(To be completed by Government)*

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

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION	23. SUBMIT INVOICES TO ADDRESS SHOWN IN: *(4 copies unless otherwise specified)*	ITEM
☐ 10 U.S.C. 2304(c) ( ) ☐ 41 U.S.C. 253(c) ( )		Clause G.13

24. ADMINISTERED BY *(If other than Item 7)* CODE	25. PAYMENT WILL BE MADE BY CODE
	NASA Shared Services Center (NSSC) **Financial Management Division(FMD) – Accounts Payable** **Bldg. 1111, C. Road** **Stennis Space Center, MS 39529**

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

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

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SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS

B.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

The following contract clauses pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

None Incorporated by Reference

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

None Incorporated by Reference

(End of Clause)

B.2 DESCRIPTION OF WORK

(a) The Contractor shall provide all required services (except as may be expressly stated in this contract as furnished by the Government) necessary to successfully manage, deliver and/or perform, operate, maintain and provide all requirements in accordance with the Statement of Work (SOW) in Section C, as well as all Data Requirement Description (DRDs) provided in Section J, and all other requirements as specified throughout the contract.

(b) In addition, the Contractor shall provide all resources and services (except as may be expressly stated in this contract as furnished by the Government) necessary to successfully perform all phase-in activities, in accordance with the Contract Phase-in Plan, Attachment J-2 HHPC-MGMT-05.

(c) This is a performance-based, Indefinite Delivery/Indefinite Quantity (IDIQ) type contract. The contract performance will be measured in accordance with the Award Fee Plan, Attachment J-11.

(End of Clause)

B.3 CURRENT CONTRACT VALUE

The total contract value of NNJ15HK11C is as follows:

1.	The total current firm-fixed-price of the Phase-In effort (62-calendar day phase-in period from July 31, 2015 through September 30, 2015)	$Offeror Fill-in (OFI)
2.	The total current value of firm-fixed price Task/Delivery Orders issued	$0.00
3.	The total current value of cost-reimbursable Task/Delivery Orders (including fee) issued	$5,000,000.00
4.	The total value of Level of Effort (LOE) Task/Delivery Orders issued	$(TBD)
	Total Current Contract Value (Subtotal Items 1-4)	$ (OFI)

Items 1-4 will be updated periodically by the Contracting Officer on no less than a semi-annual basis.

(End of Clause)

B.4 1852.216-85 ESTIMATED COST AND AWARD FEE. (SEPT 1993) (APPLICABLE TO COST-REIMBURSEMENT)

The estimated cost of this contract is **TBD**. The maximum available fee, excluding base fee, if any is **TBD**. The base fee is **$0**. Total estimated cost and maximum fee is **TBD**.

(End of Clause)

B.5 1852.232-77 LIMITATION OF FUNDS (FIXED- PRICE CONTRACT). (MAR 1989) (APPLICABLE TO FIXED-PRICE)

(a) Of the total price for fixed-priced Task/Delivery Orders, the sum of $**TBD** is presently available for payment and allotted to this contract. It is anticipated that from time to time additional funds will be allocated to the contract in accordance with the following schedule, until the total price of said Task/Delivery Orders is allotted:

SCHEDULE FOR ALLOTMENT OF FUNDS

Date	Amounts
TBD	**(OFI to match B.3 FFP Phase-In)**

(b) The Contractor agrees to perform or have performed work on the Task/Delivery Orders specified in paragraph (a) of this clause up to the point at which, if this contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause would, in the exercise of reasonable judgment by the Contractor, approximate the total amount at the time allotted to the contract. The Contractor is not obligated to continue performance of the work beyond that point. The Government is not obligated in any event to pay or reimburse the Contractor more

than the amount from time to time allotted to the contract, anything to the contrary in the Termination for Convenience of the Government clause notwithstanding.

(c)

1) It is contemplated that funds presently allotted to this contract will cover the work to be performed until **TBD**.

2) If funds allotted are considered by the Contractor to be inadequate to cover the work to be performed until that date, or an agreed date substituted for it, the Contractor shall notify the Contracting Officer in writing when within the next 60 days the work will reach a point at which, if the contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause will approximate 75 percent of the total amount then allotted to the contract.

3)

i) The notice shall state the estimate when the point referred to in paragraph (c)(2) of this clause will be reached and the estimated amount of additional funds required to continue performance to the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it.

ii) The Contractor shall, 60 days in advance of the date specified in paragraph (c) (1) of this clause, or an agreed date substituted for it, advise the Contracting Officer in writing as to the estimated amount of additional funds required for the timely performance of the contract for a further period as may be specified in the contract or otherwise agreed to by the parties.

4) If, after the notification referred to in paragraph (c) (3) (ii) of this clause, additional funds are not allotted by the date specified in paragraph (c) (1) of this clause, or an agreed date substituted for it, the Contracting Officer shall, upon the Contractor's written request, terminate this contract on that date or on the date set forth in the request, whichever is later, pursuant to the Termination for Convenience of the Government clause.

(d) When additional funds are allotted from time to time for continued performance of the work under this contract, the parties shall agree on the applicable period of contract performance to be covered by these funds. The provisions of paragraphs (b) and (c) of this clause shall apply to these additional allotted funds and the substituted date pertaining to them, and the contract shall be modified accordingly.

(e) If, solely by reason of the Government's failure to allot additional funds in amounts sufficient for the timely performance of this contract, the Contractor incurs additional costs or is delayed in the performance of the work under this contract, and if additional funds are allotted, an equitable adjustment shall be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the services to be performed, or in the time of delivery, or both.

(f) The Government may at any time before termination, and, with the consent of the Contractor, after notice of termination, allot additional funds for this contract.

(g) The provisions of this clause with respect to termination shall in no way be deemed to limit the rights of the Government under the default clause of this contract. The provisions of this Limitation of Funds clause are limited to the work on and allotment of funds for the items set forth in paragraph (a) of this clause. This clause shall become inoperative upon the allotment of funds for the total price of said work except for rights and obligations then existing under this clause.

(h) Nothing in this clause shall affect the right of the Government to terminate this contract pursuant to the Termination for Convenience of the Government clause of this contract.

(i) Of the total price for the fixed-priced phase-in, the sum of **(OFI to match B.3 FFP Phase-In)** is presently available for payment and allotted to this contract.

(End of Clause)

B.6 1852.232-81 CONTRACT FUNDING. (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 $5,000,000. This allotment is for Human Health and Performance Contract (HHPC) and covers the following estimated period of performance: October 1, 2015 through **TBD .**

.

(b) An additional amount of $**TBD** is obligated under this contract for payment of fee. (APPLICABLE TO COST-REIMBURSEMENT)

(End of Clause)

B.7 52.216-90 IDIQ MINIMUM AND MAXIMUM ORDERING LIMITS (AUG 2013) (JSC PROCUREMENT INSTRUCTION)

In accordance with FAR 52.216-22, Indefinite Quantity, the guaranteed minimum to be ordered under this contract is $5,000,000 and the maximum which may be ordered under this contract is $1,440,000,000. This value is based on price. The Government is not obligated to order more than the minimum specified, but may order up to the maximum. The Contractor is obligated to fulfill orders issued, up to the maximum quantity.

(End of Clause)

B.8 FULLY BURDENED RATE TABLE FOR PRICING FIXED-PRICED TASK/DELIVERY ORDERS (APPLICABLE TO FIXED-PRICE)

To be negotiated upon issuance of Fixed-Price Task/Delivery Orders after contract award, if appropriate.

(End of Clause)

B.9 FULLY BURDENED RATE TABLE FOR PRICING COST REIMBURSABLE (CR) TASK/DELIVERY ORDERS (APPLICABLE TO COST-REIMBURSEMENT)

The purpose of this clause is to set forth the rates to be utilized in the subsequent negotiation of CR

IDIQ Task/Delivery Orders in accordance with clause H.4- Task Ordering Procedure.

Pricing of all CR IDIQ Task/Delivery Orders shall be in accordance with the negotiated rates set forth below. Under no circumstances shall the rates used to price out CR Task/Delivery Orders exceed the agreed upon rates in the Fully Burdened Rate Table shown below.

These following labor, indirect, and fee rates shall be used in establishment of the estimated cost of individual CR Task/Delivery Orders. The labor rates are fully burdened composite team rates (prime and all subcontractors); but exclude prime fee. The Fee Rate is the maximum fee rate which may be proposed or negotiated for individual CR Task/Delivery Orders during contract performance.

The parties agree that the fully burdened labor rates established below shall not be subject to any equitable adjustment (upwards or downwards), regardless of actual rates incurred during contract performance.

Table 1.0 Fully Burdened Rate Table – 5 Year Base Period

FULLY BURDENED RATE TABLE			5 Year Base Period				
Item #	**Labor Category**	**Unit**	**Contract Year 1 Rates**	**Contract Year 2 Rates**	**Contract Year 3 Rates**	**Contract Year 4 Rates**	**Contract Year 5 Rates**
			10/1/2015 – 9/30/2016	10/1/2016 – 9/30/2017	10/1/2017 – 9/30/2018	10/1/2018 – 9/30/2019	10/1/2019 – 9/30/2020
1	Administration Specialist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
2	Administration Specialist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
3	Administration Specialist III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
4	Architect	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
5	Business Specialist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
6	Business Specialist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
7	Configuration Management Specialist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
8	Configuration Management Specialist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
9	Drafter	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
10	Drafter (Senior)	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
11	Engineer I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
12	Engineer II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
13	Engineer III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
14	Engineer IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
15	Engineer V	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
16	Engineering Technologist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
17	Engineering Technologist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
18	Engineering Technologist III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
19	Information Technologist (IT) I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
20	Information Technologist (IT) II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
21	Information Technologist (IT) III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
22	Information Technologist (IT) IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
23	Manager I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
24	Manager II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
25	Med Level I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
26	Med Level II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
27	Med Level III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
28	Med Level IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
29	Med Level V	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**

30	Planner/Scheduler I	Hour	OFI	OFI	OFI	OFI	OFI
31	Planner/Scheduler II	Hour	OFI	OFI	OFI	OFI	OFI
32	Product Assurance Manager	Hour	OFI	OFI	OFI	OFI	OFI
33	Professional I/Technical Level I	Hour	OFI	OFI	OFI	OFI	OFI
34	Professional II/Technical Level II	Hour	OFI	OFI	OFI	OFI	OFI
35	Professional III/Technical Level III	Hour	OFI	OFI	OFI	OFI	OFI
36	Program Manager	Hour	OFI	OFI	OFI	OFI	OFI
37	Project Controls Specialist I	Hour	OFI	OFI	OFI	OFI	OFI
38	Project Controls Specialist II	Hour	OFI	OFI	OFI	OFI	OFI
39	Quality Assurance Specialist I	Hour	OFI	OFI	OFI	OFI	OFI
40	Quality Assurance Specialist II	Hour	OFI	OFI	OFI	OFI	OFI
41	Quality Engineer I	Hour	OFI	OFI	OFI	OFI	OFI
42	Quality Engineer II	Hour	OFI	OFI	OFI	OFI	OFI
43	Quality Engineer III	Hour	OFI	OFI	OFI	OFI	OFI
44	Safety Manager	Hour	OFI	OFI	OFI	OFI	OFI
45	Scientist I	Hour	OFI	OFI	OFI	OFI	OFI
46	Scientist II	Hour	OFI	OFI	OFI	OFI	OFI
47	Scientist III	Hour	OFI	OFI	OFI	OFI	OFI
48	Scientist IV	Hour	OFI	OFI	OFI	OFI	OFI
49	Scientist V	Hour	OFI	OFI	OFI	OFI	OFI
50	Statistician	Hour	OFI	OFI	OFI	OFI	OFI
51	Statistician (Senior)	Hour	OFI	OFI	OFI	OFI	OFI
52	Supervisor	Hour	OFI	OFI	OFI	OFI	OFI
53	Supervisor (Senior)	Hour	OFI	OFI	OFI	OFI	OFI
54	Technician I	Hour	OFI	OFI	OFI	OFI	OFI
55	Technician II	Hour	OFI	OFI	OFI	OFI	OFI
56	Technician Specialist	Hour	OFI	OFI	OFI	OFI	OFI
	Indirect Cost Rate to be applied to Non-Labor Resources if required by a Task/Delivery Order (Identify the Rate and the basis of application)		OFI %	OFI %	OFI %	OFI %	OFI %
	NTE Award Fee Rate		OFI %	OFI %	OFI %	OFI %	OFI %

Table 2.0 Fully Burdened Rate Table –Options Periods

FULLY BURDENED RATE TABLE			Option 1			Option 2	
Item #	**Labor Category**	**Unit**	**Contract Year 6 Rates**	**Contract Year 7 Rates**	**Contract Year 8Rates**	**Contract Year 9 Rates**	**Contract Year 10 Rates**
			10/1/2020 -9/30/2021	10/1/2021 – 9/30/2022	10/1/2022 – 9/30/2023	10/1/2023 – 9/30/2024	10/1/2024 – 9/30/2025
1	Administration Specialist I	Hour	OFI	OFI	OFI	OFI	OFI
2	Administration Specialist II	Hour	OFI	OFI	OFI	OFI	OFI
3	Administration Specialist III	Hour	OFI	OFI	OFI	OFI	OFI
4	Architect	Hour	OFI	OFI	OFI	OFI	OFI
5	Business Specialist I	Hour	OFI	OFI	OFI	OFI	OFI
6	Business Specialist II	Hour	OFI	OFI	OFI	OFI	OFI
7	Configuration Management Specialist I	Hour	OFI	OFI	OFI	OFI	OFI
8	Configuration Management Specialist II	Hour	OFI	OFI	OFI	OFI	OFI
9	Drafter	Hour	OFI	OFI	OFI	OFI	OFI
10	Drafter (Senior)	Hour	OFI	OFI	OFI	OFI	OFI
11	Engineer I	Hour	OFI	OFI	OFI	OFI	OFI

12	Engineer II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
13	Engineer III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
14	Engineer IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
15	Engineer V	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
16	Engineering Technologist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
17	Engineering Technologist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
18	Engineering Technologist III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
19	Information Technologist (IT) I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
20	Information Technologist (IT) II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
21	Information Technologist (IT) III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
22	Information Technologist (IT) IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
23	Manager I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
24	Manager II						
25	Med Level I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
26	Med Level II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
27	Med Level III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
28	Med Level IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
29	Med Level V	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
30	Planner/Scheduler I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
31	Planner/Scheduler II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
32	Product Assurance Manager	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
33	Professional I/Technical Level I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
34	Professional II/Technical Level II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
35	Professional III/Technical Level III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
36	Program Manager	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
37	Project Controls Specialist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
38	Project Controls Specialist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
39	Quality Assurance Specialist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
40	Quality Assurance Specialist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
41	Quality Engineer I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
42	Quality Engineer II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
43	Quality Engineer III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
44	Safety Manager	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
45	Scientist I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
46	Scientist II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
47	Scientist III	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
48	Scientist IV	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
49	Scientist V	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
50	Statistician	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
51	Statistician (Senior)	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
52	Supervisor	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
53	Supervisor (Senior)	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
54	Technician I	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
55	Technician II	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
56	Technician Specialist	Hour	**OFI**	**OFI**	**OFI**	**OFI**	**OFI**
	Indirect Cost Rate to be applied to Non-Labor Resources if required by a Task/Delivery Order (Identify the Rate and the basis of application)		**OFI %**	**OFI %**	**OFI %**	**OFI %**	**OFI %**
	NTE Award Fee Rate		**OFI %**	**OFI %**	**OFI %**	**OFI %**	**OFI %**

(a) Travel

Travel allocated to cost-reimbursement Task/Delivery Orders will be reimbursed at the actual cost, and no fee or profit shall be applied to travel costs.

Travel costs under cost-reimbursement Task/Delivery Orders will be estimated based on actual airfare and per diem rates per the most current official Continental United States (CONUS) Per Diem Rates, located at http://www.gsa.gov/portal/category/21287.

Travel costs will be authorized by individual task orders under this contract. All costs for trips will be limited as follows:

1) Costs incurred by Contractor personnel on official Government business are allowable, subject to the limitations stated in FAR 31.205-46, Travel Costs.

2) Allowable air travel expenses are limited to standard coach fare.

3) Per Diem paid on travel days are ¾ per diem; regardless of the time actually spent in travel.

(End of Clause)
(End of Section)

SECTION C - DESCRIPTION/SPECIFICATION/WORK STATEMENT

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The Human Health and Performance Contract (HHPC) will be the next major support services contract for the Human Health and Performance Directorate (HHPD). The major responsibilities of the HHPD are to ensure crew health, safety, and performance; to provide occupational health services for Johnson Space Center (JSC) and the White Sands Test Facility (WSTF); and to conduct research and develop technologies to help mitigate risks to the health, safety, and performance of future space flight crews.

The HHPC Statement of Work (SOW) includes four sections, namely, 1) Contract Management and Administration that describes the role of the contractor in the administration and management of HHPC 2) Health, Research, and Laboratory Services that provides for the maintenance and operation of all HHPD laboratories and the JSC and WSTF flight and ground occupational health programs; 3) Engineering, Research and Project Management that includes system management, project management including flight hardware, software, sustaining engineering, and mission integration, and 4) Integration that includes activities integrated across the Directorate including: Health and Medical Tech Authority (HMTA), Human Research Program (HRP), Risk Management, Knowledge Capture and Dissemination, Information Architecture, Collaborative Innovation, and Education and Development.

The structure of the SOW and associated work breakdown structure should not be construed as defining a required organizational configuration. The types of work and services described herein may more aptly be distributed over multiple organizations whose purpose is to provide the products and services required by the HHPD Directorate and its customers.

1.0 CONTRACT MANAGEMENT AND ADMINISTRATION

1.1 Contract Management

The contractor shall be responsible for the management of the contract to assure accomplishment of contract work and compliance with contract clauses. The contractor shall prepare and maintain a comprehensive Contract Management Plan (DRD HHPC-MGMT-01) that describes the overall management approach, identifies key personnel, associates all subcontracts with the work they support, and includes an accurate organization diagram.

The contractor shall provide and maintain a Contract Work Breakdown Structure (WBS) in accordance with DRD HHPC-MGMT-02, Work Breakdown Structure and Dictionary. The contractor shall use the Contract WBS as the framework for contract planning, budgeting, cost reporting, and schedule status reporting to the Government.

The contractor shall provide reports in accordance with DRD HHPC-MGMT-03. The contractor shall conduct monthly Contract Management Reviews (CMRs) with NASA management to status the contractor's financial and technical activities under the contract per DRD HHPC-MGMT-03.

The contractor shall be responsible for the timely procurement and receipt of supplies, materials, hardware, and services necessary to fulfill contract requirements. The contractor shall provide logistics support necessary to support all contract work in accordance with DRD HHPC-BP-07.

The contractor shall develop and implement an External Customer Plan in accordance with DRD HHPC-MGMT-08. The intent of the plan is to allow the contractor to market and use the HHPD facilities, contractor personnel, limited NASA personnel, and equipment for the purposes of retaining skills and

improving technical capabilities without compromising safety, process integrity or infrastructure resources.

The contractor shall develop and implement an Organizational Conflict of Interest (OCI) Mitigation Plan in accordance with DRD HHPC-MGMT-10.

1.2 Safety and Health

The contractor shall develop and implement a Safety and Health Plan in accordance with DRD HHPC-SMA-03 (Safety and Mission Assurance (SMA)). This plan shall ensure compliance with JSC Procedural Requirement (JPR) 1700.1, "JSC Safety and Health Handbook" for on-site work and shall ensure the safety of work conducted off-site. The contractor shall conduct Safety and Health Program Self Evaluations, and provide a Lessons Learned Program Plan and Lessons Learned in accordance with DRD HHPC-SMA-03.

The contractor shall support compliance with the JSC Safety and Health Program.

1.3 Quality Management System (QMS)

JSC is SAE AS9100 registered and intends to maintain this certification. The contractor shall perform all work on-site in accordance with the JSC Quality Management System and shall ensure work involving this contract performed off-site is in accordance with the requirements of SAE AS9100. The contractor shall develop and implement a Quality Plan in accordance with DRD HHPC-SMA-01 for work conducted off-site. On-site quality assurance functions, responsibilities, and tasks will be specified, if required, per Task/Delivery Order (TDO).

The contractor shall register with and be a participative member of the Government-Industry Data Exchange Program (GIDEP). The contractor shall respond to all GIDEP notifications and NASA Advisories issued from the JSC NASA-Advisory/GIDEP Documents Status Tracking System in accordance with DRD HHPC-SMA-05.

The contractor shall comply with the requirements in Attachment J-26, Quality Requirements.

1.4 Environmental Management System (EMS)

The contractor shall conduct all on-site work in compliance with JSC's Environmental Management System (EMS) in accordance with JPR 8550.1, Johnson Space Center Environmental Compliance Procedural Requirements in accordance with HHPC-MGMT-13.

1.5 Configuration Management

The contractor shall develop and implement a Configuration Management (CM) Plan in accordance with DRD HHPC-BP-03. The plan shall define processes for CM of hardware, software and firmware, engineering drawings, hardware parts lists, configuration accounting, and maintenance. The contractor shall prepare and coordinate appropriate configuration control board directives, waivers, deviations, exceptions, and maintain accurate, complete, and current CM data.

1.6 Cost Estimating for TDOs

Contract business shall be conducted in the most efficient and cost effective manner consistent with a high level of management insight and control. Cost estimates shall be accurate and permit the efficient and effective utilization of resources to accomplish the HHPC work in a very constrained budgetary environment. The contractor shall implement a system for rapid and accurate cost estimating for TDOs.

1.7 Financial Reporting

Accurate reporting of costs is a necessity for properly managing both the work and the available resources. The contractor shall provide accurate, complete, and timely financial reports that provide reliable and timely data in accordance with the contractor Financial Management Report DRD HHPC-BP-01. The data shall accurately reflect the cost incurred on the contract at the level of detail needed to manage the tasks and subtasks on the contract.

The contractor shall provide supplemental reports to the government that accurately reflect the financial status of work below the subtask level.

1.8 Facilities and Equipment Management

The activities of the HHPD are conducted in government-furnished laboratories and facilities and in contractor-provided laboratories and facilities. The contractor shall maintain a set of HHPC facilities and laboratories that are fully functional, and capable of accomplishing the work in SOW sections 2.0, 3.0, and 4.0. The contractor shall maintain the labs' operational status to support both nominal and contingency operations. The contractor shall achieve and maintain accreditation of laboratories as directed by NASA. The government will maintain a listing of the facilities, laboratories, and equipment that are available for HHPC activities (Attachments J3, J4, J23, J24, and J28).

The contractor is fully authorized to use all government furnished property that is assigned to the contract. The contractor shall maintain the functionality of the government property that it uses including all required calibrations and certifications. The contractor shall keep equipment in good repair or replace it as noted in TDOs.

1.9 Property Management

The contractor shall support HHPD asset management through implementation of its property management plan and by providing property and logistics management plans. The contractor shall provide and implement, a Government Property Management Plan in accordance with DRD HHPC-BP-09. The contractor shall provide reports of NASA property in the custody of the contractor in accordance with DRD HHPC-BP-08. The contractor shall provide Logistics Reporting in compliance with DRD HHPC-BP-07. Initial Property to be a transfer of accountability to the contractor is listed in Attachment J-4, Government Furnished Property. Initial Property to be made available to the contractor for use on site is listed in Attachments J-3, J-23, and J-24 (Installation Property includes IT hardware and software).

1.10 Communicating, Reporting, and Metrics

The contractor shall provide clear, concise, and accurate communication of HHPC management information, that reports progress and problems as well as technical information that is essential for the HHPD to accomplish its mission.

The contractor shall create a set of technical and management metrics for the HHPC and for HHPD. The government will review and approve the metrics.

2.0 HEALTH, RESEARCH, AND LABORATORY SERVICES

HHPD Health, Research and Laboratory Services are grouped into five categories: 1) Clinical and Occupational Health Services 2) Animal Care Facility 3) Biomedical Research Laboratories; 4) Environmental Science Laboratories; and 5) Human Factors Laboratories. The contractor shall enable and maintain all HHPD clinical, occupational health, and research laboratory facilities and functions as required in support of spaceflight research, engineering and development, and operations to maintain and optimize health and performance of the astronauts, and personnel at JSC and White Sands Test Facility (WSTF).

The contractor shall provide laboratory, technical, scientific, and logistical support for flight and ground-based research and operations in support of the safe and productive human habitation of space. This includes research in human health, engineering and development, and support of spaceflight operations on the International Space Station (ISS) and beyond, as well as ground-based facilities and analogs. Activities include characterization of human adaptation to multiple gravity environments and development and deployment of countermeasures for the deleterious effects of spaceflight. The results of the activities will support continued safe operations of ISS, enable human exploration beyond Low Earth Orbit (LEO), support commercial space operations and research, and improve the health, safety and quality of life for people on Earth. The contractor shall support and conduct peer-reviewed research associated with HHPD objectives, and submit research manuscripts for publication in peer-reviewed journals.

The contractor shall maintain a temperature monitoring system for all HHPD laboratory freezers, refrigerators, refrigerator/freezers, incubators and ambient areas. Additionally, the contractor shall be responsible for implementing an alarm and notification system, and responding to alarms during and after normal business hours to assure the integrity of the samples in the enclosed systems. The contactor shall procure dry ice for all day to day laboratory operations as well as maintain a contract for immediate access to sufficient amount of dry ice to support contingencies during the peak hurricane months.

The contractor shall maintain certifications for all pressure systems used in HHPD Laboratories. The contractor shall procure extended warranties for critical lab equipment as determined by NASA.

Additionally, any software licensing agreements for unique lab software shall be procured by the contractor as noted in the TDO.

2.1 Health Services

The contractor shall provide clinical and occupational health services to support NASA's occupation health program for Astronauts, and JSC and WSTF employees. The contractor shall support the prevention, recognition, evaluation, and control, of injury, illness and disease associated with the space flight and institutional work environment and to ensure the health, productivity and wellness of the workforce.

The Contractor shall provide all necessary resources to conduct a comprehensive program that fulfills the HHPD requirements for clinical and occupational health programs. These programs are carried out at

JSC, Sonny Carter Training Facility (SCTF), Ellington Field, and WSTF. The contractor shall provide primary care services to NASA personnel supporting remote space training operations, and launch and landing operations at remote sites. These include training operations in Moscow/Star City, Russia, and four times a year at Baikonur Cosmodrome when US astronauts launch and land in Kazakhstan. The contractor shall support direct return of the crew members to JSC after landing. The contractor shall support planning operations for support of remote operations for Multi-Purpose Crew Vehicle (MPCV) and Commercial Crew vehicles.

The contractor shall provide clinical support services including laboratory, pharmacy, medical imaging, health information management, and management of the human test subject screening services.

Clinic operations shall be performed in accordance with applicable Federal, state, and local regulations as well as NASA standards including JPR 1700.1 and applicable NASA Procedural Documents (NPD), NASA Procedural Requirements (NPR), procedures and guidelines. The contractor shall provide support for HHPD clinical operations as described in the following sections.

2.1.1 Flight Medicine, Occupational Medicine, and Dive Medicine Clinics

The contractor shall support operation of the Flight Medicine Clinic, and provide full Occupational Medicine Clinic and Dive Medicine Clinic services. The contractor shall ensure that all clinic operations are implemented in accordance with NASA Office of the Chief Health and Medical Officer Directives including quality assurance, credentialing, and source verification. The contractor's medical services shall be compliant with appropriate NASA regulations and Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Ambulatory Care Standards. For all NASA clinics, the contractor shall provide standard health information management services. The contractor shall meet the standards set forth in the Privacy Act of 1974 as Amended (5 United States Code (USC), Part 552a), Standards for Privacy of Individually Identifiable Health Information ("Privacy Rule"; Legislative Clarification of the Health Insurance Portability and Accountability Act (HIPAA; Public Law 104-191)), NASA Privacy Act Regulations (14 CFR Part 1212), and NASA specific 10 HIMS(Health Information Management System) system of record notice (SORN) regulations in its management of patient medical records.

2.1.1.1 Flight Medicine Clinic (FMC)

NASA will provide civil servant physicians to support primary care and aerospace medicine requirements of astronauts and NASA aviators in the FMC. In addition, there are two astronaut support programs: behavior and performance operations for psychological support for astronauts and their families during a mission, and the astronaut conditioning program to aide astronauts in their physical preparation for and recovery from a spaceflight mission. The contractor shall support these clinical and astronaut support services with properly licensed and certified support staff to address the nursing, athletic training, psychological, epidemiological, and administrative support required. FMC services are provided at JSC only.

2.1.1.2 Occupational Medicine Clinic (OMC)

The contractor shall provide full occupational medicine services within the OMC. This includes regular civil servant health screening physical exam, occupation specific exams (per NASA and Occupational Safety and Health Administration (OSHA) regulations) as well as diagnosis and medical treatment of

occupational injury or illness to JSC civil service personnel, other Federal Government employees assigned to JSC, Armed Forces personnel detailed to JSC and onsite contractors. Additionally, the OMC addresses minor illnesses/injuries for on-site personnel. OMC services are provided at JSC and White Sands Test Facility in New Mexico. Additional services requiring licensed and certified contractor support in the OMC include: ambulance; pharmacy; digital x-ray imaging; injury/illness case management to respond to civil servant and contractor occupational injuries and illnesses; and a Medical Review Officer (MRO) as well as trained administrative staff person to support NASA's Drug Free Workplace policy.

2.1.1.2.1 Test Subject Selection (TSS)

The contractor shall recruit and maintain a pool of qualified test subjects that have passed a physical and meet approved experiment criterion for participation in approved intra- and extramural investigations. OMC personnel shall perform flight-type physicals and required medical screenings to qualify potential test subjects for participation in NASA-approved ground based and fractional gravity experiments. The contractor shall coordinate and provide medical monitoring for assigned fractional gravity studies and ground studies excluding hypobaric/hyperbaric chamber studies, Neutral Buoyancy Laboratory (NBL) activities and the Crew and Thermal System chamber flights which are addressed by the Dive Medicine Clinic. The contractor shall maintain, update, and keep secure subject and/or subject candidate medical records for tests conducted at JSC.

2.1.1.2.2 Employee Assistance Program (EAP)

The EAP provides individual or group outreach services, including crisis intervention, critical incident debriefing, and trauma processing as well as workshops and presentations on a wide variety of topics relating to emotional health and well-being. The contractor shall provide EAP professional and administrative services at JSC including: limited employee and family counseling, participation in JSC emergency and incident management teams, and EAP education and seminars. EAP provides services for employees, contractors, and dependents experiencing difficulty with emotional health disorders, family/relationship problems, substance abuse, grief/loss, and stress management. The contractor shall provide consultation to the EAP providers for WSTF monthly to address active cases.

2.1.1.3 Dive Medicine Clinic

The contractor shall provide full dive medicine services at the Neutral Buoyancy Lab located at the Sonny Carter Training Facility. This includes a Texas licensed and dive medicine trained physician, who is able to provide for acute care needs for the divers and astronauts working in the pool at the NBL. The contractor shall maintain and be able to operate a hyperbaric chamber for treatment of dive related disorders such as air gas embolism and decompression sickness. The contractor shall coordinate and provide medical monitoring for hypobaric/hyperbaric chamber studies, NBL activities, and the Crew and Thermal System chamber flights. Additionally, the contractor shall have a staff qualified to train personnel in flight physiology. This contractor shall operate the hyperbaric and hypobaric chambers for instruction training and treatment.

2.1.2 Clinical Laboratory

The contractor shall provide all Clinical Laboratory Operations services including phlebotomy, laboratory analysis, and reporting services for all clinical laboratory clients; laboratory testing for astronaut selection

as well as pre- and post-flight support. The contractor shall maintain accreditation by the College of American Pathologists (CAP). The contractor shall ensure laboratory procedures are in compliance with the CAP.

2.1.3 JSC Institutional Occupational Health

The contractor shall support the JSC Occupational Health Program which provides identification, management, assessment, prevention and control of hazards and exposures to biological, chemical, and physical (radiation, heat, noise, ergonomic, etc.) hazards. Contractor support shall consist of workplace health inspections; industrial hygiene exposure assessments (including chemical hygiene and asbestos control); hazard communication (HAZCOM); drinking water assessment; a radiation safety program; a hearing conservation program; an ergonomics program, Ellington Field safety and health program; and a comprehensive occupational health training program. The occupational health training program shall include: hearing conservation; respiratory protection; ergonomics; laboratory safety; asbestos awareness, and class III and IV asbestos worker; Cardiopulmonary Resuscitation (CPR); first-aid; Automated External Defibrillators (AED); blood-borne pathogens; and confined space entry.

2.1.4 WSTF Industrial Hygiene

The contractor shall implement a comprehensive WSTF industrial hygiene program. Functions include: evaluating and characterizing workplace health hazards; characterizing and assessing workplace exposures; maintaining workplace survey plan and assessment data; conducting annual workplace health inspections as required by 29 CFR 1960; developing an exposure assessment and annual Industrial Hygiene (IH) sampling strategy and plan; assisting the Asbestos Program Manager and Chemical Hygiene Committee with program implementation and assessment; and providing recommendations to WSTF resident contractor personnel on industrial hygiene requirements, guidelines and practices.

2.2 Animal Care Facility (ACF)

The JSC Institutional Animal Care and Use Committee (JSC IACUC) is the body responsible for developing, recommending and monitoring the JSC policies and standards related to animal acquisition, care and use. This committee manages the overall animal care program, providing direction to the ACF and courtesy oversight to the Longhorn Heritage Project, Prairie Chicken Breeding Facility, as well as the Deer Protection and Control Program. The Animal Care Facility (ACF) is maintained and operated in accordance with the American Association for the Accreditation of Laboratory Animal Care (AAALAC) certification requirements. The contractor shall support the maintenance and operations of the ACF in accordance with all defined requirements for animal acquisition, care and use, as well as support the routine certification of the laboratory by the AAALAC. The contractor shall support the Animal Conservation Projects at JSC, the operation of the JSC Animal Care Facility, and crew involvement with animals associated with spaceflight experiments.

2.3 Biomedical Research Laboratories

The Biomedical Research laboratories include a variety of life science physiology laboratories that conduct peer-reviewed applied research as well as provide specific clinical/operational expertise in support of flight surgeons responsible for the health and safety of astronauts. This includes support of ISS operations and human research conducted under the HRP to investigate, mitigate and develop

countermeasures in addressing the highest risks to human health and performance. These laboratories are responsible for the performance of operations and biomedical research focused on: 1) understanding the normal human response to space flight, and 2) developing, testing, and delivering countermeasures for responses that adversely affect crew health, safety, or performance during or after space flight missions. In accomplishing its mission, the laboratories implement clinical and operational research involving the execution of discipline specific research projects, both ground and flight based. The contractor shall support the maintenance and operation and any required certification of the Biomedical Research Laboratories.

2.3.1 Biomedical Engineering for Exploration Space Technology (BE^{2}ST) Laboratory

The Biomedical Engineering for Exploration Space Technology Laboratory is a unique collaboration between the HHPD and the Engineering Directorate dedicated to the development of innovative technologies and countermeasures to close existing gaps for future human space exploration as well as improved quality of life on Earth. Examples of this collaborative work includes biomedical technology for the study and prevention of muscle atrophy, bone loss, tissue welding for wound closure, biofilm eradication, the design and fabrication of new radiofrequency and electromagnetic instrumentation, and the generation of a wide variety of novel, customized, cell/tissue based models to facilitate the proof of concept, prototype development, and final validation of the technology. The contractor shall support the BE^{2}ST laboratory's collaborative development of technologies and countermeasures, and customized test beds for new smart medical systems.

2.3.2 Biostatistics

The Biostatistics office provides consulting expertise with the application of statistical theory and practice to ongoing biomedical research, aiding in the preparation of research proposals that describe experimental design, statistical modeling and subsequent analysis of anticipated research data. The biostatistics office also assists in data analysis, visualization, and interpretation of results with the goal of maintaining statistical integrity. The contractor shall provide Biostatistics consulting expertise for experiment design, data modeling and analysis, proposal preparation, and documentation of research results. Specific tasks include estimating subject sample size(s), and the number of repeated observations necessary to achieve a given accuracy for estimating the effectiveness of countermeasures, helping investigators answer research questions by making the most accurate inference possible from their experimental data, implementation or development of special analysis techniques when standard statistical procedures are not applicable, and contributing to manuscripts submitted for publication by describing statistical modeling, analysis methodology, and estimation results.

2.3.3 Bone & Mineral Laboratory

The Bone & Mineral Laboratory supports ground based and flight research to characterize the effects of real or simulated spaceflight on the musculoskeletal system as well as evaluate the efficacy of countermeasures. The contractor shall support laboratory activities to measure changes in bone that occur as a result of space flight or bed rest or other research and test countermeasures for those changes, support medical operations by providing Duel-Energy X-ray Absorbtiometry (DXA) scans of bone density for all astronauts every 3 years, and before and after every long-duration mission, provide guidance in the development of astronaut medical standards and in the physiological interpretation of data on bone and

muscle loss, support musculoskeletal evaluations for both on-site research studies and collaborative studies with extramural institutions, and assist in evaluation of proposed exercise hardware.

2.3.4 Cardiovascular Research Laboratory

The Cardiovascular Research Laboratory performs ground-based and spaceflight research to establish a normative database of cardiovascular changes due to space flight and associated mechanisms, develop effective countermeasures, and assess new clinical and research technologies. The contractor shall support the laboratory's medical evaluation tests before and after flight on all crew members to assist in determining return to duty status, the monitoring of crew health and the predicting of individual susceptibility to spaceflight-induced cardiovascular deconditioning. Tests performed include operational tilt tests, in-flight Holter monitoring, baroreflex measurements, re-entry monitoring on all long-duration crewmembers, ultrasound examination of the heart, blood vessels, skeletal muscle, tissue thickness and other organs as needed, and changes in blood volume after flight. The contractor shall support ultrasound/echocardiography for astronaut selection, diagnostic ultrasonography for referrals from the JSC Clinic and the testing of countermeasures against post-flight orthostatic intolerance. The contractor shall support hardware development by providing science support and testing for next generation medical devices such as ultrasound devices, Holter monitors, and just-in-time medical imaging training tools, and in-flight "lab-on-a-chip" technologies. The contractor shall support research activities in both animal and human models of spaceflight as well as spaceflight biomedical research. These include hypovolemia studies, bed rest studies, parabolic flight studies and studies conducted aboard the ISS.

2.3.5 Extra-Vehicular Activity Physiology (EVA) Laboratory

The EVA Physiology Laboratory engages in the design and execution of experiments, activities and analyses related to potential protocols to assist in the mitigation of the risk of decompression sickness, environmental physiology, and suited human performance (e.g. metabolic demand and mitigation of injury). The laboratory supports operational EVA onboard the ISS, the development of individual exercise prescriptions for the exercise pre-breathe reduction protocol, and suited metabolic rate characterization during EVA training at the Neutral Buoyancy Laboratory. The contractor shall support the overall operation and maintenance of the EVA Physiology Laboratory, the tasks associated with suit and life support system hardware development and testing, and the tasks associated with the investigation of methods of assessing mechanisms of decompression sickness (DCS).

2.3.6 Exercise Physiology and Countermeasures (ExPC) Laboratory

The Exercise Physiology and Countermeasure Laboratory team develops exercise protocols and hardware to maintain astronaut health and fitness to preserve crewmembers' ability to perform tasks while in zero gravity or on a planetary surface. The contractor shall support the ExPC in the execution of space medicine operations; support astronaut medical assessment testing; evaluate and validate exercise countermeasures hardware, protocols, and conditioning programs; and perform research that will inform the development of future exercise protocols and countermeasures to maintain crew health and performance.

2.3.7 Immunology Laboratory

The Immunology Laboratory is responsible for investigating the adverse effects of spaceflight on the human immune system and the increased risk of kidney stone formation during flight due to bone demineralization. The laboratory investigates the mechanisms responsible for these physiologic changes so appropriate countermeasures can be developed. The Immunology Laboratory conducts ground-based and flight research, and is involved in conceptual design, prototype development, and clinical validation for specific flight hardware. Studies have included investigations on the effects of space flight on the human immune system, with a particular emphasis on viral shedding (in collaboration with Microbiology laboratory) and renal stone formation. The contractor shall perform the laboratory's operational assessments (e.g., renal stone), ground-based and space flight research investigations, and participate in countermeasures development/validation activities. The contractor shall support the laboratory's basic cellular/molecular research which can include the use of a) Flow cytometry, b) Scanning electron microscopy, c) Digital image analysis, d) Molecular biology/biochemistry and e) Fluorescence/transmitted light microscopy.

2.3.8 Neuroscience Laboratory

The Neuroscience Laboratory has the capability to perform human subject data collection and analyses for ground-based and flight studies. The laboratory conducts functional neurological assessments that provide an objective test of neurosensory re-adaptation to Earth's gravity following prolonged weightlessness, and develop countermeasure to mitigate sensorimotor disturbances, investigate new technology, procedures and tests. The laboratory is comprised of various smaller laboratory capabilities that allow for research and analyses in motion, neuro-autonomic evaluations, constant velocity rotation, dynamic postural control, tilt-translation, combined centripetal and translational linear acceleration, manual control, sensorimotor, and visual-vestibular gaze investigations. The contractor shall support the Neuroscience Laboratory in its performance of both ground-based and space flight investigations that focus on the effects of space flight on the human nervous system, with a particular emphasis on sensorimotor, vestibular-autonomic and perceptual functions, and on development of countermeasures. The contractor shall support the Neuroscience Laboratory's activities for medical operations by conducting pre- and post-flight testing of astronauts. The contractor shall provide support for the sensorimotor standards measures for the NASA Flight Analogs Project.

2.3.9 Nutritional Biochemistry Laboratory

The Nutritional Biochemistry Laboratory's primary goal is to determine the nutritional requirements for extended-duration spaceflight, maintain astronaut health, and develop, evaluate, and validate nutritional countermeasures to prevent or minimize the negative effects of long-duration spaceflight. The laboratory supports both spaceflight operations and the conduct of nutritional research. The contractor shall support the Nutritional Biochemistry Laboratory's identification and definition of nutritional requirements, support spaceflight medical operations, and support research projects where nutrition plays an integral role across the disciplines such as bone, muscle, cardiovascular, vision and other systems. The contractor shall support the Clinical Nutritional Assessment Profile Medical Requirement for extended-duration crewmembers.

2.3.10 Pharmacotherapeutics Laboratory

The Pharmacotherapeutics Laboratory works to mitigate pharmacotherapeutics risk by identifying and providing safe and effective diagnostics tools, pharmaceutical preparations, therapeutic procedures and intervention strategies to enable successful space medical operations. The Pharmacotherapeutics Laboratory functions also include research in pharmacokinetics, pharmaco-dynamics, applied physiology, drug stability and packaging, and therapeutic drug monitoring.

The contractor shall support Pharmacotherapeutics research and regulatory activities involving the usage of medications and surveillance of new drug development. The contractor shall support the pharmacotherapeutics laboratory to identify and provide treatment and monitoring methods in support of medical operations that will enhance health and well-being of astronauts.

2.4 Environmental Sciences Laboratories

This suite of laboratories is a multi-disciplinary group charged with addressing the scientific challenges and uncertainties associated with the spaceflight environment. The contractor shall ensure that environmental standards and crew health and safety are achieved onboard space vehicles, provide critical analytical data, develop NASA spacecraft environmental standards and flight program requirements for air and water quality, toxicology and microbiology. The contractor shall provide environmental chemistry expertise and analytical support for environmental and occupational health responsibilities of the JSC.

2.4.1 Acoustics and Noise Control Laboratory (ANCL)

The ANCL performs noise emissions testing to verify compliance with acoustics requirements for the spacecraft environment. The noise of flight hardware must be minimized and is accomplished through a comprehensive set of requirements where acoustic noise levels are limited and compliance verified before the hardware is approved for flight. To help ensure acceptable spacecraft acoustic environments, the contractor shall support the acoustic monitoring of ISS modules, spacecraft habitable volumes, payloads and Government Furnished Equipment (GFE) designs and hardware. The contractor shall support on-orbit acoustic measurements and analyses and reports, provide acoustic modeling and characterization of spacecraft acoustical environments, develop and recommend noise controls and methods to mitigate acoustical risks, investigate and recommend acoustic materials for use in specific applications and spacecraft operating environments, and investigate and develop new and innovative acoustic flight materials, acoustic monitoring devices, and reduced acoustic emission sources, and noise control means.

2.4.2 Core Analytical Laboratory

The Core Analytical Laboratory provides enhanced cellular and biological analytical capabilities at JSC. The instruments are available for any investigator who acquires the appropriate training and abides by the policy and safety standards of the lab. A scheduling program allows investigators to sign up for specific time blocks on the requested instrument. A senior scientist is available for training, instrument trouble shooting and collaboration. The contractor shall support the laboratory operations by providing safety training, equipment maintenance, and technical assistance to the Core Lab investigators. The contractor shall perform research and analysis using specialized instrumentation, which may include bioreactors, bioanalyzers, microscopy, and other imaging devices.

2.4.3 Environmental Health Laboratory (EHL)

The Environmental Health Laboratory is accredited by the American Industrial Hygiene Association and the National Environmental Laboratory Accreditation Program. The EHL provides analyses of personal and area samples for possible workplace exposure to solvents and other organic chemicals, metals (in coated surfaces and air), asbestos (in air and building materials), and any other potential workplace health hazard including mold and fungi. The EHL provides analytical services to the JSC Environmental Office and the JSC Environmental Contractor company offices. These include groundwater profiling, hazardous waste characterization, waste water, potable water, storm water and spill response testing. The EHL performs high-volume gas analysis for such entities as Crew and Thermal Systems, Ellington Field, the Lunar Specimen Curation Laboratory and the Energy Systems Test Area. The contractor shall operate the EHL for the purposes of performing chemical and physical analyses of industrial hygiene, environmental and breathing gas samples. This includes personal breathing zones, ambient air, stack emissions, breathing gases, industrial atmospheres, potable water, waste water, industrial chemicals, soil, ground water, vegetation, biological specimens, food and drugs, and other substances as directed by NASA.

The contractor shall conduct all field sampling, preservation, processing, analysis, and quality control of all environmental samples in accordance with Environmental Protection Agency (EPA), Texas Department of Health (TDH), Texas Commission on Environmental Quality (TCEQ), or other agency regulatory requirements and recommended guidance materials. All environmental samples from collection to final report stage shall be conducted under either project specific or media specific Sampling and Analysis Plan and Procedures (SAPP), and Quality Assurance Plans and Procedures (QAPP).

The contractor shall achieve American Industrial Hygiene Association (AIHA) and National Environmental Laboratory Accreditation Commission (NELAC) accreditation within one year of contract start. The contractor shall achieve and keep current the EPA, TCEQ, TDH or equivalent drinking water laboratory certifications.

2.4.4 Microbiology

The Microbiology Laboratory is a biosafety level two facility responsible for addressing crew health and environmental performance issues related to microbial infection and contamination. This responsibility is achieved by operational monitoring and investigative research using classical microbiological, advanced molecular and immuno-histochemical techniques. The Microbiology Laboratory supports the Biosafety Review Board whose mission is to identify, evaluate, control and prevent biological hazards in conformance with NASA, Federal and International health and safety regulations. The contractor shall provide operational support to spaceflight programs to mitigate microbiological risk to crew health and performance during spaceflight missions. The contractor shall be responsible for collecting, culturing, and analyzing specimens from the crew, spaceflight food and food facilities, JSC buildings and facilities (JSC Flight Medicine Clinic, the Occupational Medicine Clinic), and the spacecraft environment, define and execute pre-flight, on-orbit, and post-flight microbiology operations and activities, review and update programmatic microbiology requirements and identify, track and resolve issues, develop and implement spacecraft environmental monitoring strategies and schedules. The contractor shall support any related hardware development, provide technical and administrative support to the JSC Biosafety Review Board and the JSC IACUC, and conduct and support peer-reviewed microbiology research.

2.4.5 Radiation Laboratories

The Radiation Laboratories are comprised of a diverse set of capabilities designed to address the acute and long term risks as well as the uncertainty associated with space radiation exposure. Ground-based research in the Radiation Laboratory aims to answer questions on the biological effects of energetic ions and specifically to address critical questions ranked as top priorities in NASA's Human Research Roadmap. These research findings contribute to the development and support of radiation risk assessment tools. The Space Radiation Dosimetry Laboratory (SRDL) focuses assessment of the radiation exposure to the astronauts during all phases of spaceflight. The SRDL personnel prepare physical dosimeters and active radiation hardware for each mission and assess results post mission to calculate career exposure to provide reports to the Directorate, the Astronaut Office, and NASA Headquarters.

The contractor shall perform radiation risk assessments, provide real-time mission support and training, prepare and analyze physical dosimeters, perform the analyses required to advise astronauts of their risk from all occupational radiation exposures. A secret security clearance is required for certain mission control support tasks. The contractor shall support radiation research to enable the safe human exploration of space within acceptable risks from space radiation exposures, and assist in conducting space radiation research and advocating Human Research Program goals and collaboration with other U.S. institutions (academia, National Space Biomedical Research Institute (NSBRI), National Labs), Federal Agencies (Department of Energy, National Cancer Institute, Department of Defense), and international partners.

2.4.6 Toxicology and Environmental Chemistry Laboratory (TEC)

The TEC provides assessments of health hazards associated with all compounds that could enter spacecraft air or water, off gas testing to control airborne contaminants in the spacecraft atmosphere, onboard monitoring, provides assessments of toxicological risks to the crew, and conducts toxicological and environmental chemistry research. The TEC provides comprehensive analyses of spacecraft foods so that the spaceflight menus can be judiciously designed to fulfill the nutritional needs of the astronauts. The TEC is responsible for developing technologies for real-time on-orbit water and air quality monitoring as well the analyzing air and water samples returned from the ISS. The contractor shall perform hazard assessments of payload and spacecraft system chemicals and off-gas testing of hardware and whole modules, conduct analyses of samples to assess crew health risks. The contractor shall support the preparation and delivery of on-orbit instrumentation for monitoring of environmental quality, investigate advanced air monitoring technologies and recommend instrumentation upgrades, provide mission support and analyses and report trends in data from air quality monitors, propose and document exposure standards (e.g. Space Maximum Allowable Concentrations for Airborne Contaminants (SMACs) and Space Water Exposure Guidelines for Selected Waterborne Contaminants (SWEGs)) for health assessment of air and water quality. The contractor shall provide comprehensive chemical analyses of food, water, and air samples in support of NASA flight program operations; provide expertise to assess life-support systems for continued crew health; and coordination of environmental sampling and analyses. The contractor shall investigate advanced environmental monitoring technologies and recommend instrumentation upgrades, provide complete post-mission reporting of all environmental monitoring efforts. The contractor shall support the laboratory's research that focuses upon toxicological and environmental chemistry.

2.5 Human Factors Laboratories

The Human Factors Laboratories support a broad range of design and visualization, data collection and analysis, and research activities to support safe and productive human operations in space. The laboratories provide infrastructure to ensure that space human factors, including physical parameters and performance capabilities and limitations are defined, documented, and applied to the design and operation of vehicles, habitats, and flight crew systems equipment. While each of the following facilities may operate as a stand-alone facility, NASA's goal is to operate the Human Factors Laboratories integrated strongly with each other and with external facilities/laboratories/institutions. The contractor shall promote integration and effective, efficient, collaborative work. The contractor shall provide the unique personnel and laboratory support to provide the capabilities listed below in support of HHPD research, development, and space flight operations.

2.5.1 Anthropometry and Biomechanics Facility (ABF)

The ABF provides unique hardware, software, and personnel to accurately measure human physical parameters including changes to those parameters as affected by the space environment or unique equipment or hardware such as EVA suits. Examples of the functions performed by the ABF are the development and compliance of anthropometric, strength, range of motion and mobility requirements, ergonomic and biomechanic evaluations, suit sizing and volumetric analysis, testing and evaluation of crew work procedures and equipment, and evaluation of spacesuit designs. The contractor shall conduct a variety of space anthropometric and biomechanic evaluations and research studies to address issues humans will encounter while living, working, and exploring in space. The contractor shall conduct research and evaluations, and collect suited and unsuited human anthropometric, biomechanic, and strength data in multiple-gravity environments to support research, development, and operations of space systems.

2.5.2 Graphics Research and Analysis Facility (GRAF)

The GRAF capabilities include human modeling, computer animation, lighting and viewing analyses, operations analyses for activities internal and external to spacecraft, design concept visualization, and research and development. The contractor shall conduct computer-aided human factors analyses for human modeling, habitability concepts, animation, lighting and viewing, intra-vehicular and extra-vehicular spaceflight operations visualizations, and research and development activities using high performance computer graphics tools and workstation assets. The contractor shall employ commercial off-the-shelf tools, open source application, and in-house designed and developed tools to address human engineering issues for space design and analyses.

2.5.3 Habitability Design Center (HDC)

The HDC develops early and iterative conceptual designs, models and mockups of habitation systems, hardware and architectural concepts, as well as evaluations of crew interface designs and operating concepts. The contractor shall support conceptual human-centered design activities using industrial design, architecture, and systems engineering to solve the unique challenges of living and working in extreme environments, and rapid prototyping and mockup fabrication techniques to acquire user and stakeholder feedback early in the design process.

2.5.4 Lighting Evaluation and Test Facility (LETF)

The LETF provides the capability to investigate and evaluate lighting systems for use internal and external to human rated space vehicles and habitats. The contractor shall perform investigations, measurements, and analyses of: artificial lighting systems such as docking lights, portable lights and navigation lights; reflective characteristics of various materials; the effects of solar lighting; transmission characteristics of transparent materials used for visors, displays, and windows; as well as the effects of these on human visibility and camera performance over the operational illumination range.

2.5.5 Space Food Systems Laboratory (SFSL)

The SFSL is a multipurpose facility responsible for space food and packaging research and development. The SFSL designs, develops, evaluates and produces flight food, menus, packaging and food-related ancillary hardware for the ISS and other flight Programs as well as the Advanced Food Technology Portfolio within the Space Human Factors and Habitability Element of HRP. Food is produced and processed onsite at JSC as well as at the Space Food Research Facility located at Texas A&M. The contractor shall support the design, development, evaluation of high-quality flight food systems that are convenient, compatible with each crew member's physiological and psychological requirements, that meet spacecraft stowage and galley interface requirements, and are easy to prepare and eat in the weightlessness of space.

2.5.6 Usability Testing and Analysis Facility (UTAF)

The UTAF focuses on human factors evaluation and usability testing of crew/vehicle interfaces. The laboratory performs human factors research, advocates for the user population (the crew and ground personnel), facilitates for human-centered design, and evaluates user interface designs via heuristic and established usability evaluation methods and space human factors research.
The contractor shall conduct cognitive, human factors, and ergonomic research and evaluations. The contractor shall conduct research and evaluations to collect data on suited and unsuited human performance including human error, user satisfaction and comfort in various gravity environments.

2.5.7 Behavior and Performance Laboratory (BHP)

The BHP laboratory performs research activities that include proposing, interpreting, organizing, executing, and coordinating science activities relative to HRP risks. The laboratory proposes and implements research tasks, and performs data analysis required to address specific questions within each of the three HRP BHP risk areas including: Team, Behavioral Medicine and Fatigue/Sleep. The laboratory is involved in developing the evaluation and validation strategies for tools being considered for Transition to Operations. The laboratory serves a facilitation role to support external investigators requiring access to facility and personnel resources within NASA. The contractor shall support the BHP laboratory research activities that result in providing technologies, tools, and analysis to optimize the adaptation of the individual and crew to the space environment, and maintain motivation, cohesion, communication, morale, wellbeing, and productivity.

3.0 ENGINEERING, RESEARCH AND PROJECT MANAGEMENT

The HHPD serves the flight and research programs by providing unique subject matter expert domain knowledge to deliver hardware, software and human risk management solutions to enable human

spaceflight. The HHPD has many varied projects spanning multiple NASA centers and supporting multiple NASA programs. The contractor shall provide innovative approaches for supporting projects across multiple programs, capitalizing on integration of core competencies and integration capabilities. The contractor shall support current and future space missions involving crew health care, environmental health, life support, habitability and human factors integration, food, operational and research mission support.

The types of activities requested may include: advanced studies, analysis and trade studies, concept definition, research, Human System Integration (HSI), Systems Engineering and Integration (SE&I), risk management and integration, mission architecture definition, engineering design and development, manufacturing, testing, verification, certification, and sustaining engineering activities (hardware resupply, refurbishment, mission hardware support activities, failure analysis, repair, operating procedures), quality, and safety analyses.

The contractor shall coordinate technical meetings, prepare system documentation, provide mission related products, and provide technical and administrative support to program reviews, design reviews, control boards, panels, and similar efforts. The contractor shall support the development and maintenance of program and project documentation including requirements, operational concepts, gap and risk assessments, hazard mitigation plans and mission and console products.

3.1 System Management

The System Manager is a formal Program position that is filled through the technical line organizations at NASA Field Centers (e.g. Human Health and Performance Directorate, Engineering Directorate, and Extravehicular Activity Office). Each NASA System Manager is responsible for technical oversight of their assigned integrated system and their respective contractor System Management Team which may be comprised of the Deputy System Manager, Subsystem Managers (if the system is large and complex enough to require Subsystem Managers), System Integration personnel, and Mission Evaluation Room (MER) console support.

The current ISS systems within the Human Health and Performance Directorate include: Crew Health Care System (CHeCS): Environmental Health System, Health Maintenance System, Radiation System; Flight Crew Integration System; Food System; and Acoustics System. Other NASA Programs in development have similar but distinct System Manager functions. The contractor shall support the System Managers in the execution of the functions as states below.

3.1.1 Primary Interface

The contractor shall support the System Manager in the technical implementation and integration of the system, including the following functions: maintain awareness of issues, activities, actions, and system-relevant topics and communicate them to the System Manager, HHPD Management, Program, and stakeholders as appropriate. The contractor shall communicate, coordinate and integrate input to/from Hardware Project Managers/Engineers, science discipline Subject Matter Experts (SME), Biomedical Flight Controllers (BME), MER personnel, Program, and stakeholders; and meet all Program reporting requirements and action item due dates.

3.1.2 Strategic Planning

The contractor shall support the System Manager in strategic planning for the system, including the following functions: understand and assess human health and performance requirements related to the specific system being supported; identify requirement and operational gaps; assist with functional requirement definition; monitor real-time operations such as timeline changes, maintenance activities, and task-list performance; and identify system impacts, issues or constraints based on those changes.

The contractor shall understand programmatic trends and impulses as they relate to Mission operations and identify system impacts, issues or constraints based on those trends; and assist in the development and annual update of the system Strategic Plan.

3.1.3 Tactical Planning

The contractor shall support the System Manager in the tactical planning of the system, including the following functions: develop and maintain traffic models for system hardware based on flight schedules; forecast, plan, and prioritize manifest/waste manifest inputs based on operational need, on-orbit usage, and hardware readiness; lead the Manifest Splinter meetings, assist in negotiations with the Program for hardware (HW) delivery/ return dates and early stow/destow requirements; track HW manifesting requirements, on-dock delivery dates, , shelf life expiration, consumable usage rates, and on-orbit inventory/stowage.

The contractor shall coordinate development of operational requirements (procedures, chits, Flight Notes, Flight Rules) with BME and MER personnel; ensure training HW is adequate and available to support training sessions and procedure validation activities; participate in HHPD and Program level boards and panels when pertinent system topics are being presented and provide updates to the Increment Definition & Requirements Document (IDRD) Annexes.

3.1.4 System Acceptance

The contractor shall support the System Manager in performing system acceptance, including the following functions: participate in system hardware/software development; review and provide input into verification/certification products; and provide Flight Readiness Assessment (FRA) input that supports the system Certification of Flight Readiness (CoFR) package prior to each Mission.

3.1.5 System Problem Resolution

The contractor shall support the System Manager in performing system problem resolution, including: co-chairing the System Problems Resolution Team (SPRT) meetings and attending Failure Investigation Team (FIT) and Anomaly Resolution Team (ART) meetings.

The contractor shall coordinate system HW and SW issues to resolution and closure, obtain timely status updates, and issue reports from Project Managers, SMEs, BMEs, and MER console personnel.

3.2 Project Management

Project Managers are provided by NASA and they are responsible for the entire project life cycle from the feasibility phase, through implementation, certification, and finally, completion and closeout. The contractor shall provide project management support, including support to NASA in: establishing

management policy and processes, coordinating procurement of development tasks, tracking deliverables and products that result from these tasks, and developing and maintaining internal and external relationships that enable NASA to obtain its objectives. Activities may also include providing risk-based, quantitative and qualitative information to support decisions for crew health, safety, performance and efficiency on long duration missions.

The contractor shall develop plans and schedules, develop requirements, conduct feasibility studies and accommodation assessments, perform research, conduct safety and risk assessments and flight readiness assessments. The contractor shall integrate results of research and operational data and provide recommendations on decisions and processes to enable NASA to close the critical gaps for human spaceflight. Each project management team will manage its designated project plan, including schedule of any hardware development, flight manifest, or program operational support required. The contractor shall support NASA in maintaining working relationships with a wide range of organizations, both internal and external to NASA/JSC, including NASA Headquarters, Centers and Program Offices, other space agencies, academia and industry.

3.2.1 Engineering, Research and Technology Development

The Project Manager is responsible for guiding the feasibility phase of new projects and will lead the Project Team to define the functional requirements and all project assumptions for research and technology development.

The contractor shall provide solutions for scientific and engineering challenges using innovative collaboration with various discipline experts and labs within the directorates, JSC and other NASA Centers as well as with academia, including the National Space Biomedical Research Institute, industry and other government agencies. Many of these collaborations provide the sources of flight projects concepts and associated science and medical requirements. The nature of scientific functions of the flight hardware and software products and services are generally new and vary widely within projects as well as from project to project to meet the technical requirements. Products include advanced studies, analysis and trade studies, white papers, concept definition, and technical evaluations. The work processes and procedures used to satisfactorily complete products and projects are documented in the technical library data requirements descriptions (DRDs) and specified on task delivery orders (TDOs).

3.2.2 Hardware and Software Development

The Project Manager is responsible for leading the Project Team through both the NPR and the JPR 7120 as well as the SA-WI-014 and EA-WI-023 processes, ensuring products required at each milestone or decisional gate meet the expectations of the Program and the HHPD.

Hardware and Software Development Projects will range from support of government developed flight hardware/software to delivery of turnkey flight hardware/software and includes, systems engineering and integration, mission architecture definition, engineering design, development, testing, verification, certification, delivery, and on-orbit activation and checkout

The contractor shall perform tasks associated with product development including: requirements development, design, fabrication, test, certification, hardware and software integration, pre- and post- use processing, delivery of hardware/software and procedure development for system and subsystem components for NASA Program flight and ground products. Innovative approaches for collaboration between the engineering and operations communities on the development of engineering products that are then utilized in the development of operational products, specifically operations procedures and training products are sought. The contractor shall provide engineering analysis and assessments, using center-wide and directorate-wide resources, information architectures, and expertise when appropriate and cost efficient. The contractor shall develop, implement and maintain analytical tools and models as well as computational capabilities to support evolving engineering and science analysis requirements. The contractor shall provide and maintain products and documentation including: design review packages, engineering drawings, drawing trees, analysis reports, technical specifications, test procedures and test reports, safety data packages, quality records, operations manuals as well as analytical products as appropriate for hardware or software type. The contractor shall use off-the-shelf products when such products meet the science, technical and engineering requirements, taking advantage of existing heritage of use. The types of hardware/software may include: FCE, CHeCS, Environmental Monitoring equipment, Habitability equipment, Flight payloads and experiments, Habitats, Capsules, and Rovers, and the Ground support equipment (GSE) necessary to support these systems.

3.2.3 Human Factors Engineering

Human factors engineering is the engineering and science discipline that emphasizes the capabilities and limitations of the human operators in the design of, systems, interfaces, and tasks in order to improve total system safety and performance through the reduction of errors and workload. Human factors engineering includes consideration of stakeholder expectations and task analysis, including task allocation between operators, between flight and ground, and between operators and automation. The contractor shall provide human factors engineering expertise to the design and development of all space flight hardware and software. The contractor shall model, analyze and evaluate crew tasks and human-machine interfaces. Space flight hardware and software shall be examined for compliance to human engineering and proper labeling requirements, including consideration of physical / ergonomic and cognitive capabilities and limitations as defined in NASA-STD-3001 Volume 2. The contractor shall develop and evaluate prototypes throughout the design process to inform the design with respect to sources of error and workload.

3.2.4 Product Safety and Mission Assurance

Safety and Mission Assurance requires the development of products that address the safety, reliability and maintainability of the product during the products design, development, test and operation. In order to ensure product safety and mission assurance, the contractor shall perform tasks associated with product design, development, test and operations including: hazard analyses, risk assessments, system safety, planning reliability and maintainability predictions, Failure Modes and Effects Analysis (FMEA) and development of Critical Item Lists (CIL), life cycle estimates for maintainable items, Limited Life Items Identification and qualitative maintainability assessment. Such documents, which include hazard analysis reports, risk assessment reports, FMEA worksheets, Critical Items Lists, limited life item lists, certification data packages and acceptance data packages will be provided by the contractor as a deliverable to NASA. The contractor shall comply with the appropriate section J contract DRD based

upon the Program/Project supported. The contractor shall report and resolve problems involving spaceflight equipment, spaceflight-like equipment, and critical Ground Support Equipment in accordance with DRD HHPC-SMA-04 Problem Reporting and Corrective Action (PRACA) for the JSC Government Furnished Equipment (GFE) and Flight Products.

3.2.5 Sustaining Engineering

The Project Manager is responsible for all aspects of the hardware/software operation on-orbit. The Project Manager is responsible for leading the Sustaining Engineering Team and is accountable to the System Manager/Program (customer) Representative for integration, proper operation of the hardware/software, and resolution of issues.

The contractor shall support the project manager in the sustaining engineering by: performing regular evaluations of engineering and functional data from deployed hardware/software, providing maintenance and resupply input to the System Management Team who develop and maintain resupply schedules and traffic models, developing fault trees, determining root cause for HW/SW failures, supporting the SPRTs, FITs, and ARTs, developing integrated recovery plans that include maintaining operations, minimizing on-orbit impacts including impacts to crew time, and consumables.

3.3 Mission Integration

Preparation for flight requires extensive coordination and integration across the HHPD to ensure that the personnel and products are ready to support the mission. The contractor shall support the NASA mission integration process as outlined in the following sections.

3.3.1 Program Safety & Mission Assurance

The contractor shall represent HHPD at Program/Project/Center Risk/Safety Meetings. The contractor shall coordinate the HHPD Risk/Safety Management documents/processes to align with the Program/Projects/Center Risk/Safety documents and processes and maintain appropriate and up to date information in the risk databases for the programs and center.

3.3.2 Flight Certification

The contractor shall provide the HHPD with science and engineering skills for coordination of products necessary to meet HHPD flight certification requirements for the ISS Program, Commercial Crew, MPCV, and any other future programs. The contractor shall support the CoFR process for a given flight, including event and milestone planning, document(s) and presentations required to complete reviews and meet program requirements. As part of the contractor's support to the CoFR Process for a given flight, the contractor shall consult with the System Managers to integrate CoFR products across all subsystems in support of the HMTA's endorsement, in support of the Flight Activities Control Board (FACB) and ISS Program Stage Operations Readiness Review (SORR).

3.3.3 Mission Support

The contractor shall perform mission support for all flight programs including mission and technical support for all HHPD pre-flight, in-flight and post-flight documentation and training, baseline data collection, and flight support from both the Mission Control Center (MCC) and Telescience Support

Center (TSC) operations. Some of these activities occur internationally at International Partner sites. A secret security clearance is required for certain tasks in this area for up to five people.

3.3.4 Mission Planning

The contractor shall support mission planning of ISS Medical Operations required to maintain crew health and safety during all phases of operations as well as the research activities for current and future missions as they are developed. ISS Medical operations includes supporting the management and operations of the ISS systems and hardware (e.g., CHeCS) as well as the sustaining engineering support required to maintain the CHeCS hardware operational and ready for use/flight. Examples for ISS Medical Operations include integration plan and annex development and assessments, mission complement analysis, resources management, flight negotiations and re-planning within the MCC flight control team structure, subject matter expertise support for Crew Time Working Group (CTWG) Requirements Integration Panel (RIP), Flight Rules Control Board (FRCB), Joint Operations Panel (JOP), and others as applicable. Research activities include the development, manifesting, planning and management of science research conducted on the ISS. Examples for ISS Medical Project (ISSMP) research activities include Internal Review Board (IRB) complement coordination**,** Science Management Panel and HRP Control Board (HRPCB) review of experiment complements, Research Planning Working Group complement coordination, International Human Research Complement Working Group (IHRCWG) complement review, and Payload Mission Integration Team complement readiness assessments.

3.3.5 Training

The contractor shall develop and implement training material and provide training to all users including crewmembers, HHPD flight support console personnel, and other NASA and International Partner support personnel. This includes, but is not limited to: developing training requirements, certification plans and records, simulation scripts, lesson plans, and maintenance of training facilities and consumables.

3.3.6 Flight Support

The contractor shall perform technical, administrative, and documentation duties for continuous operation of missions, as well as contingency operations, including: preparation before flight, pre-flight timeline development and review, inflight procedure development and verification, real-time console support for simulations and increment support, ground display development, commanding definition and implementation, during all phases of space flight and follow-up after each flight and expedition. The contractor shall interface with the Mission Control Center (MCC), Payloads Operations and Integration Center (POIC) and MER flight control teams as required to address any hardware operations. MCC support includes console operations by a BME and a Space Radiation Analysis Group representative. Engineering and system integration expertise is required to work through hardware anomalies, the ISS program Increment Management Team (IMT), and the European Space Agency (ESA), Japanese Space Agency (JAXA), Canadian Space Agency (CSA) and Russian Space Agency (RSA) Medical and research flight control teams. The contactor shall provide inventory tracking and management, including stowage and resupply planning. The contractor shall employ a reliable limited life tracking system. The contractor shall support medical and research operational responsibilities for all space flight missions including in-flight health care delivery and fitness maintenance and behavioral sciences activities (evaluation of

psychiatric risk factors, crew team and cross cultural coping skills for long duration missions and family support) as well as in-flight research implementation.

3.3.7 In-Flight Data-Management

Data management includes the flow management, collection and archiving of all data associated with operations and research activities. The contractor shall support the development, maintenance and implementation of plans to manage the flow of mission, biomedical, and environmental hardware data as well as archival of these data. The contractor shall coordinate with all customers to enable data sharing in accordance with established policies and approved agreements. The contractor shall utilize directorate-wide information architectures to manage and distribute data to the appropriate entities, such as principal investigators, system managers, and flight surgeons. The TSC provides consoles and data acquisition tools for flight experiments and the Human Research Facility. The contractor shall support the operations and management of the JSC TSC which provides capabilities and infrastructure for real time support of human research flight operations.

4.0 INTEGRATION

The contactor shall recommend, validate, and maintain requirements and standards, identify and mitigate risks to crew health, safety and performance, conduct research and analysis, and provide sound, comprehensive medical, biomedical, environmental, and space human factors support to NASA's human flight programs. Successful implementation of the requirements of this contract will help assure the following critical outcomes:

- Risks to crew health, safety and performance during all phases of spaceflight are identified and characterized.
- Abatement plans are successfully developed, validated, and implemented to control these risks to well-defined, acceptable levels.
- A Human Systems Integration approach has been taken in all elements of system design and mission operations planning and implementation.

On the basis of well-documented information and analyses, the contractor shall make recommendations on certification of flight readiness for all human spaceflight missions.

The contractor shall provide support to the integration activities of the HHPD. These efforts involve supporting execution of integration activities, including program and technical authority support, risk management, open innovation, information management, long-range institutional planning, and policy development activities, as well as the formation of strategic alliances, coordination of benchmarking, and the capture and dissemination of knowledge to support the future efforts of the Agency and improve life on Earth. This effort includes supporting all of the major activities that require an integrated perspective across disciplines, services that cross HHPD divisions and processes that require Directorate level decision making. For each of the subtasks, the contractor shall perform all management functions, including technical and business management, necessary to plan, implement, track, report and deliver the required products and services. The contractor shall initiate, develop, and /or complete plans, feasibility studies in order to develop rough order of magnitude (ROM) cost and schedule estimates for new

activities as needed. The contractor shall provide program and project management expertise, including planning and scheduling, task management and coordination, and subtask expertise detailed below. The contractor shall support the assessment of requirements for Directorate and Program activities annually, create plans in accordance with HHPD requirements to be documented in accordance with agency and center requirements, and keep those plans current throughout the year.

4.1 Health and Medical Technical Authority (HMTA)

The HMTA manages human system risks through integration of human health and performance requirements via programmatic and project insight and oversight, coupled with the appropriate support and involvement of subject matter experts. The Health and Medical Technical Authority is part of the Agency governance model and is independent from NASA programs and projects. The HMTA provides a check and balance (along with the other Agency Technical Authority (TA's) Engineering and Safety and Mission Assurance) to ensure that the programs and projects are developed and managed in a way that does not jeopardize the health and well-being of NASA employees in space and on the ground. The contractor supports the HMTA delegates in identification, documentation, and elevation of issues as necessary.

The contractor shall facilitate HMTA SME review of Agency and Program documentation, monitor and document issues of human system requirements deficiencies and develop materials to support HMTA position(s) for human health and performance issues. The contractor shall prepare decision support materials for the HMTA for escalation of issues for all current NASA human space flight programs including ISS, Exploration, and Commercial Space and any other future human space programs or missions. The contractor shall develop materials to support the HMTA endorsement of flight program development and operational milestones, including assessment of NPR7120.5, NPR 7123.1, and NPR 8705.2, including NASA-STD-3001 Volumes 1 and 2 compliance, as well as Certificate of Flight Readiness for HHPD Systems and Hardware. The contractor shall perform independent technical assessments and analyses as requested and develop reports to inform the Chief Medical Officer (CMO) and Office of Chief Health and Medical Office (OCHMO) of program progress, operations, and risks. The contractor shall support development of directives and reports as directed by the CMO or HMTA program delegates. The contractor shall coordinate the maintenance of HMTA standards including NASA-STD-3001 Volumes 1 and 2, and the Human Integration Design Handbook NASA/SP-2010-3407. The contractor shall prepare materials to inform the development of health and medical policy for NASA review and approval.

4.2 Human System Integration (HSI)

HSI is an interdisciplinary and comprehensive management and technical process that focuses on the integration of human considerations into the system acquisition and development process to enhance human-system design, reduce lifecycle ownership cost, and optimize total system performance. Human system domain activities associated with manpower, personnel, training, human factors engineering, safety, health, habitability, and survivability are considered concurrently and integrated with other systems engineering activities.

The contractor shall provide integration of human health and performance domain knowledge in support of systems safety, and systems engineering for NASA's development and flight programs. The contractor shall provide the following HSI support for NASA's development of capabilities for continued human space exploration: integrating information from the HHPD's diverse interests, skills, and subject matter expertise into unified responses to program/project challenges, designs, and inquiries; gathering information on the current status of programs and projects; and gathering and documenting evidence to support design decisions and participating in program/project meetings, discussions, and review boards. The contractor shall provide technical expertise to define, develop, procure, manage, and oversee the development of products, documents, analysis models, planning methods, and hardware and software tools to support HSI activities. These HSI activities shall include providing recommendations; performing analyses trades studies and feasibility studies; facilitation, strategic engineering and planning; development of operations concepts and analysis; research and operations planning; functional allocation of requirements; architectural requirements definition; requirement and interface development; analyses of performance, cost, and schedule requirements; design analysis and assessments; human in the loop testing in support of verification and validation activities; provision of data and information for test and verification activities; certification activities; and human rating and risk assessments for the development programs. Domain expertise in human-systems integration is required to recognize issues and design concerns in which HHPD should participate or in which HHPD standards and requirements compliance is at risk, and may include knowledge of disciplines and processes in other technical areas including those from Engineering and Safety and Mission Assurance.

The contractor shall develop HSI processes and products to inform future programs including: best practices and documentation of lessons learned, Program and project specific HSI Plans and Human Systems Integration requirements, and HSI inputs to Agency requirement documents such as NPR7120.1B and NPR 8707.2.

4.3 Human Research Program (HRP)

The HRP is an Agency Program with a Program Office that resides within the Human Health and Performance Directorate at JSC, with much of the work matrixed to HH&P Divisions and laboratories. The HRP is the focal point for human health and performance research at NASA. The HRP investigates and mitigates, the highest risks to human health and performance for human space exploration providing essential countermeasures and technologies. The HRP conducts research and technology development that enables the development or modification of Agency-level human health and performance standards, and provides the Human Exploration and Operations Mission Directorate (HEOMD) with methods of meeting those standards in the design, development and operation of mission systems. HRP is tasked with identifying, validating and mitigating the human health and performance risks associated with exploration missions. As a research program, NPR 7120.8, NASA Research and Technology Program and Project Management Requirements apply at the program level as well as all of the HRP Elements, except for the ISSMP which is managed in accordance with NPR 7120.5. The HRP is managed at JSC with multicenter support and expertise from Ames Research Center (ARC), Langley Research Center (LaRC), Kennedy Space Center (KSC), Glenn Research Center (GRC), and Marshall Space Flight Center (MSFC). The contractor shall support the HRP including program integration, planning and execution of research, and documentation and archiving of research findings as noted below.

4.3.1 Program Support

The contractor shall provide planning, organizational management tools, risk assessment and management, and professional support for the HRP program office and the HRP Control Board and Science Management Panel. The contractor shall provide updated content of the HRP research planning documents. This includes the generation and maintenance of program-level products such as program plans, processes, reports, and integrated schedule development and tracking. Activities also include planning of and participation in management activities, coordination of periodic program and project reviews, reviewing program element documents and products for applicability to the program, identifying and resolving programmatic risks, systems engineering and technical processes, integration of systems engineering data products, coordination between HRP program elements and external customers, configuration management of program and element management plans and other program documentation, product tracking, library database management, website development and management, and strategic planning for integration across NASA Centers for HRP activities.

The contractor shall support coordination of science management including identification and prioritization of research and technology development, and the use of resources such as ISS and analogs for human research. This support includes ensuring the integrated research portfolio is properly defined, measurement techniques are consistent with contemporary standards, and scientific integrity is maintained via rigorous external community reviews as well as internal program reviews. The contractor shall support establishing science management policy and processes; coordinate procurement of scientific research and technology development tasks, and track deliverables and products that result from these tasks. The contractor shall develop and maintain internal and external relationships that enable HRP to obtain its objectives. The contractor shall provide risk-based, quantitative and qualitative information using techniques such as Continuous Risk Management (CRM) and Probabilistic Risk Assessment (PRA) to support decisions for crew health, safety, and efficiency on long duration missions.

4.3.2 HRP Elements

The HRP is comprised of six (6) Elements responsible for the research and generation of countermeasures and/or requirements to mitigate crew health and safety risks. The elements that comprise the HRP are: Space Radiation (SR), Human Health and Countermeasures (HHC), Exploration Medical Capability (ExMC), Space Human Factors and Habitability (SHFH), Behavioral Health and Performance (BHP), and ISS Medical Projects (ISSMP). All elements, except for ISSMP, are focused on the research required to mitigate the crew risks for long duration missions. The elements' research plans, which are documented in the HRP Integrated Research Plan (IRP), provide the path to risk reduction which outlines the research that should be conducted to mitigate the crew health and safety risks. The ISSMP element is the interface between the HRP and the ISS Program in implementation of HRP research that utilizes the ISS vehicle as the platform for research that requires a microgravity environment. For the majority of the research protocols, which are implemented via competitive grants, the contractor shall support the development of the implementation plan and oversee the strategies for identifying research needs and opportunities according to the HRP IRP. Some directed research will occur within the HHPD laboratories. The contractor shall support the implementation and completion of tasks in support of this research as directed by the HRP.

The five (5) research Elements provide the knowledge and capabilities to conduct research to address the human health and performance risks as well as advance the readiness levels of technology and countermeasures to the point of transfer to the customer programs and organizations. An Element consists of the aggregation of related portfolios and research tasks focused toward developing products that reduce risks to the crew. The Element is managed as an R&T portfolio project, but may elect to establish formal projects with its element. A project is characterized as an integrated set of tasks undertaken to deliver a product or set of products to a designated customer on a specified date. The contractor shall support the Element/Portfolio manager in management and implementation of the element portfolios/projects research programs in concert with the Element Scientist and integration across applicable organizations and programs. This support includes, planning and schedule development, support to program and project reviews and actions, development of portfolio/project level documents and reports, data analysis, generation of customer supplier agreements and recommendations for risk closure/reduction.

4.3.3 International Science Collaboration

In support of the international research collaborations, the contractor shall integrate and coordinate across the HRP and international partners/collaborators to maximize the value of the international research effort for exploration based on the goals and objectives of the NASA Human Research Program and the Agency. The contractor shall develop strategic and implementation plans and guidance for sharing both hardware usages across disciplines and across partners as well as the operational medical and human research data to maximize human research return. The contractor shall work with multilateral and bilateral implementation groups to coordinate individual documents and processes that facilitate international collaboration and help oversee the HRP and Agency research based on integrated inputs from all partners and participants.

4.3.4 ISS Medical Projects (ISSMP)

The ISSMP utilizes the ISS and ground analogs to obtain solutions to human health and performance problems and associated mission risks identified in the HRP IRP. The ISSMP Element integrates the HRP-approved flight and ground analog activity and interfaces with external organizations, such as the ISS Payload Office, International Partners, and analog owner/operators to accomplish HRP objectives. The ISSMP serves as the service Element to the five (5) HRP research Elements for management and implementation of the flight and analog research. ISSMP is responsible for managing all ISS and ground analog human research activities including those integrated with operational medical support of the crews, to ensure research tasks are completed. The ISSMP is responsible for planning, integration, and implementation services for HRP research tasks and evaluation activities requiring access to space and ground analogs. The ISSMP provides training of payload support personnel, crew training, and on-orbit procedure development such as troubleshooting, maintenance, and operations of payload hardware in the Payload Development Lab (PDL; part of the ISS full scale mockup). The ISSMP also provides and manages the Human Research Facility (HRF), enabling generic test and monitoring capabilities for HRP studies on the ISS. ISSMP services include operations and sustaining engineering for flight hardware; consumables and supply management; experiment integration and operation; medical operations; procedures; crew training concepts and operation and sustaining engineering for the TSC, which provides real-time operations and data services to all HRP flight experiments.

The contractor shall support the HRP ISSMP including management of approved experiments, science integration and real-time support for ISS complements, training, and coordination of baseline data collection for all human research. Platforms for operations and integration include the ISS, the Human Exploration Research Analog (HERA), other analog environments and future vehicles and exploration environments such as the MPCV. For analog operations, the contractor shall support facility maintenance and integration, mission planning, coordination of research, and collection and archival of research data. The contractor shall provide mission and technical support for medical and research operations during all phases of flight, namely, pre-flight, in-flight and post-flight. Support includes documentation development, procedure development and validation, operations concepts, data management, and coordination with other teams. The contractor shall provide tactical planning and strategic analysis of the experiment queue to optimize experiment throughput, and maximize science return and assist HRP management in addressing the closure of critical gaps defined in the IRP. The contractor shall prepare a resource assessment summary necessary to produce the HRP Fly-off Plan to enable long term analysis of potential phasing of HRP flight and analog research. The contractor shall provide for coordination and implementation of long duration science experiments sponsored by the HRP. The contractor shall perform resource analysis of the research complements and provide planning inputs to the POIC for integrated requirements for proposed experiments. The contractor shall provide personnel to support console operations as needed to ensure successful performance of flight procedures and acquisition of samples. The contractor shall support re-planning activities and anomaly resolution in conjunction with hardware and science subject matter experts.

4.4 Risk Management

The risk management approach is proactive in nature and structured to provide early insight through appropriate collection and use of data, with concern for understanding and controlling the risks for human spaceflight. The HHPD manages human health and performance risk and knowledge gaps on behalf of the Agency via the Human Systems Risk Board (HSRB). Human system risks encompass environmental exposures, crew performance issues, biomedical stressors/susceptibilities, the ability to provide medical care, and any other challenges that affect the human as a system. The JSC CMO established the HSRB to ensure a consistent, integrated process is established and maintained for managing human system risks. The HSRB advises the JSC CMO, HMTA delegates, HHPD management, and key HHPD boards concerning the identification, status, coordination, integration, mitigation, and research strategy of all human system risks. The HSRB is delegated responsibility by the HMTA for two categories of activities: (1) documenting and tracking all risks to the human system associated with spaceflight activities, and (2) managing all human system risks and specifying actions to be taken with respect to the risk: accept, mitigate, watch, research, or retire. The HSRB establishes risk priorities based on a risk assessment process. If the board determines there is sufficient evidence for a risk but additional research is required to characterize or mitigate the risk, it is assigned to the HRP. The HRP will complete an analysis of the risk and develop a research plan to further understand, inform the standards, or develop mitigation or monitoring strategies for the assigned risk. Flight program and project specific risks are managed through the respective project offices and maintained via program and project boards and databases. Human health and performance risks are elevated to the appropriate program and managed via project managers, program HHPD system managers, and HMTA delegates via program-specific risk management

processes. Additionally, HHPD personnel and capabilities may be leveraged in support of Center or Agency institutional risks related to clinical health or industrial hygiene.

In support of the HHPD risk management process, the contractor shall assess and analyze health and performance risks and topics arising in human spaceflight programs, develop and maintain the tools and information to allow the HMTA to evaluate and inform the risk posture of the Programs. The contractor shall provide technical support and coordination to the HSRB and associated Working Group(s). This support requires maintenance and support of the risk database(s), including quality checking of the evidence, data, and linkages to assure the information is complete and correct, and generating reports to facilitate risk based decision processes as required by NASA.

4.5 Knowledge Capture and Dissemination

The HHPD is dedicated to the capture, archiving and the proper dissemination of data collected during and related to human spaceflight. This includes astronauts' medical, operational, and research data, and research data from test subjects, plants and animals during spaceflight and ground based studies. Current capture, archival, and dissemination resources are associated with the Lifetime Surveillance of Astronaut Health (LSAH); Life Sciences Data Archive (LSDA); Flight Crew Integration (FCI) Crew Comments Database; and the HRP sponsored Human Performance Data Project (HPDP). The contractor shall support the knowledge capture and dissemination in accordance with processes and procedures determined by the LSAH Advisory Board and the NASA JSC IRB as well as with the Privacy Act of 1974 as Amended (5 United States Code (USC), Part 552a); Standards for Privacy of Individually Identifiable Health Information ("Privacy Rule"; Legislative Clarification of the Health Insurance Portability and Accountability Act (HIPAA; Public Law 104-191)); NASA Privacy Act Regulations (14 CFR Part 1212); NASA specific 10 HIMS (Health Information Management System) system of record notice (SORN); and NASA specific 10 HERD (Human Experimental and Research Data Records) SORN regulations in its management of medical and research data.

LSAH is responsible for the screening and monitoring of astronaut medical data for evidence of occupationally-related injury or disease, examines incidence of acute and chronic morbidity and mortality of astronauts, and defines health risks associated with astronaut occupational exposures. LSAH also supports human health and performance risk mitigation and gap assessment efforts by providing data and analyses to HRP personnel and funded researchers. The contractor shall provide epidemiological, biostatical, and administrative support to the LSAH.

LSDA houses NASA life science research data from 1961 (Mercury Project) through current flight and analog studies involving human, plant, and animal subjects. Much of the data in the LSDA is publically available but some is potentially attributable to individual human subjects and access is restricted due to the Privacy Act of 1974 as amended but can be acquired through a request process. The contractor shall provide archival, website maintenance and administrative support to LSDA.

The Flight Crew Integration Crew Comments Database is implemented by the Operational Habitability Team and is the most complete archive of ISS post flight crew debrief data. Data are captured during post-flight crew debriefs, maintained in the database, and used for the generation of standard reports and responses to formal data requests. The contractor shall provide archival and administrative support to the Flight Crew Integration Crew Comments Database. The contractor will conduct Crew Expedition debriefs to collect operational habitability data and maintain a sortable, confidential database of all ISS Expedition

crew debrief comments that will be used to generate special topic reports, System reports, and Quick reports.

The HPDP will be a repository of human performance metrics associated with spaceflight and possibly aviation operations that contains contextual data (e.g., environmental or medical stressors) and will make information available for analysis and meaningful comparison. The contractor shall provide subject matter expertise, archival, and administrative support to the development and sustainment of the HPDP. The contractor shall define metrics of interest, identify potential datasets, collect datasets, and investigate the issues of integrating HPDP with existing databases [e.g., ISS Crew Comments Database, Lifetime Surveillance of Astronaut Health] to provide inputs to the database architecture as well as designing a usable interface. The data mining will be standardized regarding data collection practices/queries.

4.6 Information Systems Architecture (ISA)

Information systems for the HHPD have been consolidated into a single group. There are four main functions provided by this group: Information Systems Architecture, Information Systems Development, Information Systems Operations, and End-User Services. The group serves HHPD through an integrated approach to Information Systems management that leverages services available within HHPD, at the Center, and at the Agency, including software development and IT support to the flight and research programs. Examples of the information systems functions in the directorate include:

- Data Services: Electronic Medical Record (EMR) for astronaut and occupational health records
- Research and Archive Services: data entry & coding systems for medical and research data (Lifetime Surveillance of Astronaut Health database – LSAH, and Life Sciences Data Archive - LSDA), tracking system for research consent forms
- Access & Communication Services: internal organizational and group sites, external web sites, self-serve reporting services, and data/information discovery functions
- Collaboration: Working areas for processing and distribution of products
- Interface Services: data made available within the information systems utilizing standards such as HL7, ICD-9/10, and SNOMED (Systematized Nomenclature of Medicine)
- Data/Information Analysis & Modeling: statistical and other analytical software supporting epidemiology and data mining. Also modeling applications such as the Integrated Medical Model
- Business & Mission Applications: Commercial Off the Shelf (COTS), Modified Off the Shelf (MOTS), and custom applications supporting the business and mission of the directorate. Examples are configuration management, documentation management, mission planning, and clinical image processing

The contractor shall implement a comprehensive and integrated information architecture program, inclusive of information technology (IT) infrastructure maintenance and operations, to enhance management and administrative functions and to meet discipline-specific requirements. The contractor shall ensure the highest level of operational efficiency while delivering and supporting unique development efforts and Information Systems support functions specific to the human health and performance disciplines within the general NASA architecture. The contractor shall evaluate and recommend new Information Systems approaches and/or specific IT systems that take advantage of emerging technologies and practices while ensuring compatibility and integration with directorate, center, and agency architectures. The contractor shall highlight where existing standards or policies may impede

adoption of new technology or practices as part of ensuring that the Information Systems Architecture implementation supports the business processes of HHPD.

4.6.1 ISA Management and Planning

The information systems in HHPD support a wide variety of functions. An Information Systems Architecture describes and models the systems in a way that facilitates lifecycle software and systems decision making. Components of the Information Systems Architecture at the top level include: Data Architecture, Security Architecture, and Functional Architecture.

The contractor shall define and maintain the information architecture for the HHPD. The contractor shall ensure that all HHPD information systems adhere to the Security Architecture. The contractor shall develop and maintain an IT Security Program Plan in accordance with DRD HHPC-IT-02 to describe the policy, processes, and procedures that will be implemented to ensure the appropriate security of any IT resources that are developed, processed, or used under this contact. The contractor shall perform all management functions, including technical and business management, necessary to plan, implement, track, and report on information systems tasks and projects. The contractor shall develop and maintain a Capital Planning and Investment Control (CPIC) plan in accordance with DRD HHPC-IT-01. The contractor shall support the assessment of IA requirements for directorate and Program activities, create additional plans in accordance with HHPD requirements to be documented in accordance with directorate requirements, and keep those plans current throughout the year. The plans shall cover both contractor and government requirements. The contractor shall design, implement, and support architecture efforts that result in more ready access to HHPD data assets. The contractor shall incorporate into the architecture the fusion/visualization of human factors data and health informatics collections in support of mission operations and research.

4.6.2 Information Systems Application Acquisition & Development

Information Systems applications for business and mission functions are a combination of COTS, MOTS, and custom developed applications. The full software lifecycle is supported including requirements generation, solution selection, implementation, maintenance, enhancement, and obsolescence planning. Applications are selected to be compatible with the directorate information architecture.

The contractor shall provide full software lifecycle support for all HHPD applications. The list of developed and COTS applications are provided in Attachment J-24. Development support ranges from simple web application development to complex custom applications as well as some modified commercial-off-the-shelf applications.

The contractor shall support the internal and external website development, operations and maintenance using existing Content Management System (CMS) applications where applicable. New websites shall be requested, reviewed, and approved through the Information Systems Architecture Branch.

The contractor shall support the implementation of a directorate-wide information management effort with specific focus on implementation of enhanced information and document management practices defining and implementing solutions capitalizing on enterprise content management platforms, including but not limited to, Microsoft SharePoint and the nasa.gov website content management system. The contractor shall ensure current and accurate content for all HHPD, and specified HRP, web, wiki and social media sites and applications as well as data integration with other applications as required.

4.6.3 Information Systems Operations

The information systems in the directorate support the business and mission functions of HHPD. Maintaining these systems in an operating state keeps the directorate functioning. There are varying service levels required by the different stakeholders – e.g. a portion of HHPD functions have a need for continuity of operations or 24 hour return to service.

4.6.3.1 Hosting and Infrastructure Support Services

Directorate information systems are generally located on site at NASA JSC, with disaster recovery services located at WSTF. The systems have some interfaces with other center and Agency systems for Agency requirements as well as to leverage capabilities outside the directorate. These systems support the wide variety of business and mission needs of the directorate. Examples include an electronic medical record, picture archive and communication system, secure collaboration space, configuration management workflow tool, databases, terminal servers for remote access, and documentation management tools. In support of the HRP research, the contractor shall support the development of new capabilities and the maintenance of both the HRP Human Research Roadmap (HRR) external site which captures the program's ongoing and future research, and the HRR Content Management System (CMS) internal site used to manage and maintain the research database. The contractor shall also support the HRP "One Portal" user interface capability that will enhance management of the program data contained in several tools/databases. Most on site HHPD personnel access these systems using ACES workstations.

The contractor shall implement and operate an IT infrastructure compatible and integrated with Agency and center standards, processes, and infrastructure to enable secure information exchange and resource sharing. The contractor shall be responsible for systems and infrastructure development, system administration, sustaining engineering, account management, data backup, disaster recovery and system performance monitoring as well as installation, configuration, operation and maintenance of all assigned software and applications.

The list of IT components attached to the laboratory equipment is provided in Attachment J-23 and the non-standard software loaded on the systems is listed in Attachment J-24.

4.6.3.2 IT Security

The information systems in the directorate contain data of many types, some of which is subject to the Privacy Act of 1974, as amended. The directorate also maintains systems with access from the general public, such as the Bed Rest Study subject enrollment site and the Life Science Data Archive. The security of these systems is a high priority for the directorate. The contractor shall maintain the security of the IT systems for which they are responsible as well as the data in those systems to ensure all systems pass vulnerability scans and meet or exceed all IT security requirements as specified in NPR 2810 (current version). The contractor shall provide sustaining IT security engineering that includes vulnerability analysis and resolution and coordination with affected user organizations. The contractor shall ensure timely and accurate delivery of the required systems and data security information to ensure IT Security Plans, maintained by the Information Technology and Multimedia Systems (ITAMS) contractor, are current at all times.

4.7 Collaborative Innovation

The HHPD is committed to the development and deployment of new tools to advance the Agency's mission and goals. The Collaborative Innovation Office is responsible for supporting several Agency-wide initiatives including the internal crowd sourcing platform nasa@work, the Center of Excellence for Collaborative Innovation (CoECI), and the NASA Human Health and Performance Center (NHHPC).

The contractor shall support challenge development, posting, and evaluation on the nasa@work platform and the CoECI to facilitate federal government-wide adoption of open collaboration and innovation as methods of acquisition. The contractor shall provide support for implementation and pilot tournaments, and assist with measurement of the performance of open innovation on meeting the government's needs. The contractor shall provide management support, develop and conduct outreach presentations and workshops, maintain lessons-learned, best practices, and case studies to improve the efficacy of distributed innovation practices. The contractor shall identify, construct, and maintain the necessary virtual facility infrastructure(s), including challenge-related web infrastructure, code repositories, social media sites, and solution assessment tools. The contractor shall develop and maintain expertise to facilitate novice innovators' selection and utilization of the mechanisms, including characterizing the needs, selecting and utilizing the available contract mechanisms, satisfying intellectual property controls and resolving issues, collecting, assessing, and developing recommendations for improving the execution of the mechanisms. The contractor shall provide logistical and planning support for the NASA Human Health and Performance Center. The support includes planning and executing events, screening and maintaining the membership information, facilitating member interactions, and managing information sets to help assess the effectiveness of member interactions.

4.8 Education and Development

The HHPD maintains unique knowledge acquired through participation in decades of human spaceflight. The capture and dissemination of this knowledge enables the sustained operations of future space programs, and adds value to stakeholders on Earth who benefit from this knowledge. The contractor shall support HHPD's efforts to capture and disseminate lessons learned and research findings through the publication of technical articles and manuscripts, by representing NASA's work at technical conferences, and through providing management support in organizing educational development and outreach programs.

The HHPD organizes the Space Life Sciences Summer Institute (SLSSI) as a program offered to summer interns at JSC provide training on the principles of human spaceflight, operations of JSC, and the unique contributions of the Directorate to address risks and develop mitigations against the hazards of human spaceflight. The SLSSI offers lectures and tours with faculty that includes NASA scientists, physicians, flight controllers, engineers, managers, and astronauts. The contractor shall support the SLSSI by providing organizational capability in the annual planning, student assignments with mentors, lecture scheduling, tours, and presentation events.

The HHPD offers a four week Aerospace Medicine Clerkship semiannually. The clerkship includes formal lectures on general space medicine topics and familiarization with medical support of the ISS including operation, design, and function of space medicine hardware and procedures. The participants are required to complete a research project and paper in a current focus area of space medicine which is presented to the Space and Clinical Operations community. The contractor shall support the Aerospace

Medicine Clerkship by providing organizational planning, participant badging, student assignments with mentors, lecture scheduling, tours, and presentation events.

SECTION D - PACKAGING AND MARKING

D.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

The following contract clauses pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

None Incorporated by Reference

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

None Incorporated by Reference

(End of Clause)

D.2 1852.211-70 PACKAGING, HANDLING, AND TRANSPORTATION (SEPT 2005)

(a) The Contractor shall comply with NASA Procedural Requirements (NPR) 6000.1, "Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components", as may be supplemented by the statement of work or specifications of this contract, for all items designated as Class I, II, or III.

(b) The Contractor's packaging, handling, and transportation procedures may be used, in whole or in part, subject to the written approval of the Contracting Officer, provided (1) the Contractor's procedures are not in conflict with any requirements of this contract, and (2) the requirements of this contract shall take precedence in the event of any conflict with the Contractor's procedures.

(c) The Contractor must place the requirements of this clause in all subcontracts for items that will become components of deliverable Class I, II, or III items.

(End of Clause)

(End of Section)

SECTION E - INSPECTION AND ACCEPTANCE

E.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

The following contract clauses pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

52.246-2 INSPECTION OF SUPPLIES – FIXED-PRICE. (AUG 1996) (APPLICABLE TO FIXED-PRICE)

52.246-3 INSPECTION OF SUPPLIES - COST-REIMBURSEMENT. (MAY 2001) (APPLICABLE TO COST-REIMBURSEMENT)

52.246-4 INSPECTION OF SERVICES - FIXED-PRICE. (AUG 1996) (APPLICABLE TO FIXED-PRICE)

52.246-5 INSPECTION OF SERVICES - COST-REIMBURSEMENT. (APR 1984) (APPLICABLE TO COST-REIMBURSEMENT)

52.246-7 INSPECTION OF RESEARCH AND DEVELOPMENT - FIXED-PRICE. (AUG 1996) (APPLICABLE TO FIXED-PRICE)

52.246-8 INSPECTION OF RESEARCH AND DEVELOPMENT - COST-REIMBURSEMENT. (MAY 2001) (APPLICABLE TO COST-REIMBURSEMENT)

52.246-16 RESPONSIBILITY FOR SUPPLIES. (APR 1984) (APPLICABLE TO FIXED-PRICE)

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

1852.246-73 HUMAN SPACE FLIGHT ITEM. (MAR 1997)

(End of Clause)

E.2 52.246-11 HIGHER-LEVEL CONTRACT QUALITY REQUIREMENT (FEB 1999)

The Contractor shall comply with the higher-level quality standards selected below.

Title	Number/ Date	Tailoring
Quality Management Systems –Requirements for Aviation, Space and Defense Organizations	SAE AS9100C/2009	Specific tailoring is contained in the Task/Delivery Orders. Independent certification/registration is not required.

(End of Clause)

E.3 1852.246-71 GOVERNMENT CONTRACT QUALITY ASSURANCE FUNCTIONS. (OCT 1988)

In accordance with the inspection clause of this contract, the Government intends to perform the following functions at the locations indicated:

Government Quality Assurance functions is typically performed by the JSC Safety and Mission Assurance (S&MA) Directorate, its support contractor or delegated representatives.

ITEM	QUALITY ASSURANCE FUNCTION	Location
1	Perform surveillance, Government mandatory inspections, acceptance, procurement quality assurance and source inspections.	JSC, Contractor's Facility(s), Subcontractor and Vendors' Facilities

(End of Clause)

E.4 1852.246-72 MATERIAL INSPECTION AND RECEIVING REPORT (AUG 2003)

(a) At the time of each delivery to the Government under this contract, the Contractor shall furnish a Material Inspection and Receiving Report (DD Form 250 series) prepared in 3 (three) copies, an original and 2 (two) copies.

(b) The Contractor shall prepare the DD Form 250 in accordance with NASA FAR Supplement 1846.6. The Contractor shall enclose the copies of the DD Form 250 in the package or seal them in a waterproof envelope, which shall be securely attached to the exterior of the package in the most protected location.

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

(End of Clause)

E.5 INSPECTION AND ACCEPTANCE

Final inspection and acceptance shall be accomplished by the Contracting Officer or his/her duly authorized representative.

(End of Clause)

(End of Section)

SECTION F – DELIVERIES OR PERFORMANCE

F.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

52.242-15 STOP-WORK ORDER. (AUG 1989) (APPLICABLE TO FIXED-PRICE)

52.242-15 STOP-WORK ORDER. (AUG 1989) - ALTERNATE I (APR 1984) (Applicable to cost-reimbursable)

52.242-17 GOVERNMENT DELAY OF WORK. (APR 1984) (APPLICABLE TO FIXED-PRICE)

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

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

NONE INCORPORATED BY REFERENCE

(End of Clause)

F.2 1852.247-73 BILLS OF LADING. (JUN 2002)

The purpose of this clause is to define when a commercial bill of lading or a government bill of lading is to be used when shipment of deliverable items under this contract are Free On Board (F.O.B) Origin. Unless otherwise specified in the Task/Delivery Order and authorized in advance by the Contracting Officer, deliveries under this contract shall be made F.O.B Destination

(a) Commercial Bills of Lading. All domestic shipments shall be made via commercial bills of lading (CBLs). The Contractor shall prepay domestic transportation charges. The Government shall reimburse the Contractor for these charges if they are added to the invoice as a separate line item supported by the paid freight receipts. If paid receipts in support of the invoice are not obtainable, a statement as described below must be completed, signed by an authorized company representative, and attached to the invoice.

"I certify that the shipments identified below have been made, transportation charges have been paid by (company name), and paid freight or comparable receipts are not obtainable".

Contract Number: NNJ15HK11C
Destination: **TBD**

(b) Government Bills of Lading.

1) International (export) and domestic overseas shipments of items deliverable under this contract shall be made by Government Bills of Lading (GBLs). As used in this clause, "domestic overseas" means non-continental United States, i.e. Hawaii, Commonwealth of Puerto Rico, and possessions of the United States.

2) At least 15 days before shipment, the Contractor shall request in writing GBLs from:
JSC Transportation Officer
Building 420
NASA Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

If time is limited, requests may be by telephone:

Requests for GBLs shall include the following information:
(i) Item identification/ description
(ii) Origin and destination
(iii) Individual and total weights
(iv) Dimensional Weight
(v) Dimensions and total cubic footage
(vi) Total number of pieces
(vii) Total dollar value
(viii) Other pertinent data

(End of Clause)

F.3 52.247-95 FLIGHT ITEM. (SEP 1989) (JSC PROCUREMENT INSTRUCTION)

Block 16 of each DD Form 250 prepared for hardware or equipment to be shipped under this contract must be annotated as follows in ¼-inch letters or larger by hand printing or rubber stamp:

"THIS IS A FLIGHT ITEM" or "THIS IS MISSION ESSENTIAL GROUND SUPPORT EQUIPMENT", as applicable.

(End of Clause)

F.4 COMPLETION OF WORK

The base ordering period of this contract shall be from October 1, 2015 thru September 30, 2020.

(End of Clause)

F.5 SHIPPING INSTRUCTIONS

(a) All documentation and hardware to be shipped to JSC shall be shipped as identified below:

Parcel Post Shipments and Freight Shipments

Ship to: Transportation Officer,
Building 420
NASA Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

Mark for: Contracting Officer's Representative (COR)
Mark With: Contract Number: NNJ15HK11C
For reissue to: Jason Weeks/SA4 (COR)
(Name) (Mail Code) (Bldg.) (Rm.)

(b) Unless otherwise authorized in advance by the Contracting Officer, deliveries under this contract shall be made between the hours of **7:30 a.m. and 3:30 p.m**., Monday through Friday, excluding Federal holidays.

Hardware may be required to be shipped to locations other than those identified above in the performance of this contract; the "ship to; mark for; for reissue to" information shall be modified as necessary to annotate the appropriate information for each shipment.

(End of Clause)

F.6 OPTION TO EXTEND

The Government may require the contractor to continue to perform services under this contract. The contracting officer may exercise this option by issuance of a unilateral contract modification 30 days or more before the completion date set forth in Section F.4. Should the option be exercised, the resultant contract will include all terms and conditions of the basic contract as it exists immediately prior to the exercise of the option, except for the following changes:

Option 1:

1. F.4, entitled "COMPLETION OF WORK," will be modified to state:

   "All work required under this contract, including submission of all reports, shall be completed on or before **September 30, 2023**" or as contemplated by paragraph (d) of I.7 52.216-22 INDEFINITE QUANTITY (OCT 1995)

2. I.5, entitled "ORDERING" will be modified to state:

   "Such orders may be issued from **October 1, 2015** through **September 30, 2023**."

3. I.7, entitled “INDEFINITE QUANTITY” will be modified to state:

   “The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided that the Contractor shall not be required to make any deliveries under this contract after **September 30, 2023**.”

Option 2:

1. F.4, entitled “COMPLETION OF WORK,” will be modified to state:

   “All work required under this contract, including submission of all reports, shall be completed on or before **September 30, 2025**” or as contemplated by paragraph (d) of I.7 52.216-22 INDEFINITE QUANTITY (OCT 1995)

2. I.5, entitled “ORDERING” will be modified to state:

   “Such orders may be issued from **October 1, 2015** through **September 30, 2025**.”

3. I.7, entitled “INDEFINITE QUANTITY” will be modified to state:

   “The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided that the Contractor shall not be required to make any deliveries under this contract after **September 30, 2025**.”

(End of Clause)

F.7 PLACE OF PERFORMANCE

The principal place of contractor’s performance of the various work elements is at NASA’s Johnson Space Center. Work may be performed at other NASA Centers and other places covered by the Statement of Work, including: Texas A&M University, College Station TX; Cross Development/Montgomery LP “Westland Bunker,” Conroe, Texas; White Sands Test Facility, New Mexico; Moscow, Russia; and Baikonur, Kazakhstan.

(End of Clause)

(End of Section)

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

NONE INCORPORATED BY REFERENCE

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS

1852.223-71 FREQUENCY AUTHORIZATION. (DEC 1988)

1852.227-70 NEW TECHNOLOGY. (MAY 2002)

1852.227-86 COMMERCIAL COMPUTER SOFTWARE - LICENSING. (DEC 1987)

1852.242-73 NASA CONTRACTOR FINANCIAL MANAGEMENT REPORTING. (NOV 2004)

1852.245-79 RECORDS AND DISPOSITION REPORTS FOR GOVERNMENT PROPERTY WITH POTENTIAL HISTORIC OR SIGNIFICANT REAL VALUE. (JAN 2011)

(End of Clause)

G.2 1852.216-76 AWARD FEE FOR SERVICE CONTRACTS. (APRIL 2012) (APPLICABLE TO COST-REIMBURSEMENT)

(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 may submit a self-evaluation of performance for each evaluation period under consideration. These self-evaluations will be considered by the Government in its evaluation. The Government's Fee Determination Official (FDO) will determine the award fee amounts based on the Contractor's performance in accordance with Attachment J-11 Award Fee Plan. 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 NASA Shared Services Center (NSSC) will make payment based on issuance of unilateral

modification by the Contracting Officer.

(d) The Contracting Officer may direct the withholding of earned award fee payments until a reserve is set aside in an amount that the Contracting Officer considers necessary to protect the Government's interest relative to an orderly and timely closeout of the contract. This reserve shall not exceed 15 percent of the contract's total potential award fee or $100,000, whichever is less.

(e) The amount of award fee which can be awarded in each evaluation period is limited to the amounts set forth at Attachment J-11 Award Fee Plan. Award fee which is not earned in an evaluation period cannot be reallocated to future evaluation periods.

(f)

1) Provisional award fee payments will be made as applicable 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 70 percent or the prior period's 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.

4) Provisional award fee payments will be made prior to the first award fee determination by the Government.

(g) Award fee determinations are unilateral decisions made solely at the discretion of the Government.

(End of clause)

G.3 1852.227-72 DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE. (JUL 1997)

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

NEW TECHNOLOGY:	PATENT REPRESENTATIVE:
NASA Johnson Space Center	NASA Johnson Space Center
AD2/Technology Transfer	AL/Patent Representative

2101 NASA Parkway Houston, TX 77058-3696	2101 NASA Parkway Houston, TX 77058-3696

(b) Reports of reportable items, and disclosure of subject inventions, interim reports, final reports, utilization reports, and other reports required by the clause, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative unless transmitted in response to correspondence or request from the Patent Representative. Inquires or requests regarding disposition of rights, election of rights, or related matters should be directed to the Patent Representative. This clause shall be included in any subcontract hereunder requiring a "New Technology" clause or "Patent Rights - Retention by the Contractor (Short Form)" clause, unless otherwise authorized or directed by the Contracting Officer. The respective responsibilities and authorities of the above-named representatives are set forth in 1827.305-370 of the NASA FAR Supplement.

(End of clause)

G.4 1852.242-70 TECHNICAL DIRECTION (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 C of this contract.

(b) The COTR does not have the authority to, and shall not, issue any instruction purporting to be technical direction that -

3) Constitutes an assignment of additional work outside the statement of work;
4) Constitutes a change as defined in the changes clause;
5) 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;
6) Changes any of the expressed terms, conditions, or specifications of the contract; or
7) 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) of this clause, 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 calendar 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.5 1852.245-70 CONTRACTOR REQUESTS FOR GOVERNMENT-PROVIDED EQUIPMENT (JAN 2011) ALTERNATE I (JAN 2011) (APPLICABLE TO COST-REIMBURSEMENT)

(a) The Contractor shall provide all property required for the performance of this contract. The Contractor shall not acquire or construct items of property to which the Government will have title under the provisions of this contract without the Contracting Officer's written authorization. Property which will be acquired as a deliverable end item as material or as a component for incorporation into a deliverable end item is exempt from this requirement. Property approved as part of the contract award or specifically required within the statement of work is exempt from this requirement.

(b)

1) In the event the Contractor is unable to provide the property necessary for performance, and the Contractor requests provision of property by the Government, the Contractor's request shall -
   i) Justify the need for the property;
   ii) Provide the reasons why contractor-owned property cannot be used;
   iii) Describe the property in sufficient detail to enable the Government to screen its inventories for available property or to otherwise acquire property, including applicable manufacturer, model, part, catalog, National Stock Number or other pertinent identifiers;
   iv) Combine requests for quantities of items with identical descriptions and estimated values when the estimated values do not exceed $100,000 per unit; and
   v) Include only a single unit when the acquisition or construction value equals or exceeds $100,000.

2) Contracting Officer authorization is required for items the Contractor intends to manufacture as well as those it intends to purchase.

3) The Contractor shall submit requests to the Contracting Officer no less than 30 days in advance of the date the Contractor would, should it receive authorization, acquire or begin fabrication of the item.

(c) The Contractor shall maintain copies of Contracting Officer authorizations, appropriately cross-referenced to the individual property record, within its property management system.

(d) Property furnished from Government excess sources is provided as-is, where-is. The Government makes no warranty regarding its applicability for performance of the contract or its ability to operate. Failure of property obtained from Government excess sources under this clause is insufficient reason for submission of requests for equitable adjustments discussed in the clause at FAR 52.245-1, Government Property, as incorporated in this contract.

(e) In the event the Contracting Officer issues written authorization to provide property, the Contractor shall screen Government sources to determine the availability of property from Government inventory or excess property.

1) The Contractor shall review NASA inventories and other authorized Federal excess sources for availability of items that meet the performance requirements of the requested property.

i) If the Contractor determines that a suitable item is available from NASA supply inventory, it shall request the item using applicable Center procedures.

ii) If the Contractor determines that an item within NASA or Federal excess is suitable, it shall contact the Center Industrial Property Officer to arrange for transfer of the item from the identified source to the Contractor.

2) If the Contractor determines that the required property is not available from inventory or excess sources, the Contractor shall note the acquisition file with a list of sources reviewed and the findings regarding the lack of availability. If the required property is available, but unsuitable for use, the contractor shall document the rationale for rejection of available property. The Contractor shall retain appropriate cross-referenced documentary evidence of the outcome of those screening efforts as part of its property records system.

(End of Clause)

G.6 1852.245-71 INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY (JAN 2011) (ALT 1) (JAN 2011)

(a) The Government property described in paragraph (c) of this clause may 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 unless authorized by the Contracting Officer under (b) (1) (iv). Under this clause, the Government retains accountability for, and title to, the property, and the Contractor shall comply with the following:

NASA Procedural Requirements (NPR) 4100.1, NASA Materials Inventory Management Manual;

NASA Procedural Requirements (NPR) 4200.1, NASA Equipment Management Procedural Requirements;

NASA Procedural Requirement (NPR) 4300.1, NASA Personal Property Disposal

Procedural Requirements;

NASA Procedural Requirements (NPR) 4310.1, Identification and Disposition of NASA Artifacts

NASA Procedural Requirements (NPR) 4200.2, NASA Equipment Management Manual for Property Custodians

JSC Procedural Requirement (JPR) 1281.7B, Control of Customer Property

JSC Procedural Requirement (JPR) 1281.15, Identification, Handling, Storage, Packaging, Preservation, and Delivery

JSC Work Instruction (JWI) 4200.1, Management of Controlled Equipment

JSC Work Instruction (JWI) 4210.2, JSC Instructions for Control of Program Stock (formally JSC 26549)

JSC Work Instruction (JWI) 4300.1, JSC Instructions for Excess and Disposal of Government Property

JSC Work Instruction (JWI) 6050.1A, Procedures for Processing Shipments from JSC

Property not recorded in NASA property systems must be managed in accordance with the requirements of the clause at FAR 52.245-1, as incorporated in this contract. The Contractor shall establish and adhere to a system of written procedures to assure continued, effective management control and compliance with these user responsibilities. In accordance with FAR 52.245-1(h)(1) the contractor shall be liable for property lost, damaged, destroyed or stolen by the contractor or their employees when determined responsible by a NASA Property Survey Board, in accordance with the NASA guidance in this clause.

(b)

1) The official accountable recordkeeping, financial control, and reporting of the property subject to this clause shall be retained by the Government and accomplished within NASA management information systems prescribed 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 shall not utilize the installation's central receiving facility for receipt of contractor-acquired property. However, the Contractor shall provide listings suitable for establishing accountable records of all such property received, on a monthly basis, to the SEMO.

    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 for Government titled property as required by FAR 52.245-1, as incorporated in this contract, and shall maintain that record until accountability is accepted by the Government.

iv) Contractor use of Government property at an off-site location and off-site subcontractor use requires advance approval of the Contracting Officer and notification of the Industrial Property Officer. The property shall be considered Government furnished and the Contractor shall assume accountability and financial reporting responsibility. The Contractor shall establish records and property control procedures and maintain the property in accordance with the requirements of FAR 52.245-1, Government Property (as incorporated in this contract), until its return to the installation. NASA Procedural Requirements related to property loans shall not apply to offsite use of property by contractors.

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) of this clause 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.

(c) The following property and services are provided if checked:

[x] (1) Office space, work area space, and utilities. Government telephones and computers are available for official purposes only.
[x] (2) Office furniture.
[x] (3) Property listed in Attachment J-3 Installation Accountable Government Property.

i) 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.
ii) 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.

[ ] (4) Supplies from stores stock.
[x] (5) Publications and blank forms stocked by the installation.
[x] (6) Safety and fire protection for Contractor personnel and facilities.
[x] (7) Facilities
[x] (8) Medical treatment of a first-aid nature for Contractor personnel injuries or illnesses sustained during on-site duty.
[x] (9) Cafeteria privileges for Contractor employees during normal operating hours.
[x] (10) Building maintenance for facilities occupied by Contractor personnel.
[x] (11) On-site moving and hauling for office moves, movement of large equipment, and delivery of supplies. Moving services may be provided off-site, as approved by the Contracting Officer.

(End of Clause)

G.7 1852.245–73 FINANCIAL REPORTING OF NASA PROPERTY IN THE CUSTODY OF CONTRACTORS (JANUARY 2011)

(a) The Contractor shall submit annually a NASA Form (NF) 1018, NASA Property in the Custody of Contractors, in accordance this clause, the instructions on the form and NFS subpart 1845.71, and any supplemental instructions for the current reporting period issued by NASA.

(b)

1) 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.

2) The Contractor shall mail the original signed NF 1018 directly to the cognizant NASA Center Deputy Chief Financial Officer, Finance, unless the Contractor uses the NF 1018 Electronic Submission System (NESS) for report preparation and submission.

3) One copy shall be submitted (through the Department of Defense (DOD) Property Administrator if contract administration has been delegated to DOD) to the following address: [Insert name and address of appropriate NASA Center office.], unless the Contractor uses the NF 1018 Electronic Submission System (NESS) for report preparation and submission.

(c)

1) 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 15. 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 15. Some activity may be estimated for the month of September, if necessary, to ensure the NF 1018 is received when due. However, contractors' procedures must document the process for developing these estimates based on planned activity such as planned purchases or NASA Form 533 (NF 533 Contractor Financial Management Report) cost estimates. It should be supported and documented by historical experience or other corroborating evidence, and be retained in accordance with FAR Subpart 4.7, Contractor Records Retention. Contractors shall validate the reasonableness of the estimates and associated methodology by comparing them to the actual activity once that data is available, and adjust them accordingly. In addition, differences between the estimated cost and actual cost must be adjusted during the next reporting period. Contractors shall have formal policies and procedures, which address the validation of NF 1018 data, including data from subcontractors, and the identification and timely reporting of errors. The objective of this validation is to ensure that information reported is accurate and in compliance with the NASA FAR Supplement. If errors are discovered on NF 1018 after submission, the contractor shall contact the cognizant NASA Center Industrial Property Officer (IPO) within 30 days after discovery of the error to discuss corrective action.

2) The Contracting Officer may, in NASA'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 in accordance with NFS subpart 1845.71 and any supplemental instructions for the current reporting period issued by NASA. Such reserve shall be withheld until the

Contracting Officer has determined that NASA has received the required reports. 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 shall be submitted within 30 days after disposition of all property subject to reporting when the contract performance period is complete in accordance with paragraph (b)(1) through (3) of this clause.

(End of clause)

G.8 1852.245-74 IDENTIFICATION AND MARKING OF GOVERNMENT EQUIPMENT (JAN 2011)

(a) The Contractor shall identify all equipment to be delivered to the Government using NASA Technical Handbook (NASA–HDBK) 6003, Application of Data Matrix Identification Symbols to Aerospace Parts Using Direct Part Marking Methods/Techniques, and NASA Standard (NASA–STD) 6002, Applying Data Matrix Identification Symbols on Aerospace Parts or through the use of commercial marking techniques that: (1) are sufficiently durable to remain intact through the typical lifespan of the property: and, (2) contain the data and data format required by the standards. This requirement includes deliverable equipment listed in the schedule and other equipment when no longer required for contract performance and NASA directs physical transfer to NASA or a third party. The Contractor shall identify property in both machine and human readable form unless the use of a machine readable-only format is approved by the NASA Industrial Property Officer.

(b) Equipment shall be marked in a location that will be human readable, without disassembly or movement of the equipment, when the items are placed in service unless such placement would have a deleterious effect on safety or on the item's operation.

(c) Concurrent with equipment delivery or transfer, the Contractor shall provide the following data in an electronic spreadsheet format:
   1) Item Description.
   2) Unique Identification Number (License Tag).
   3) Unit Price.
   4) An explanation of the data used to make the unique identification number.

(d) For equipment no longer needed for contract performance and physically transferred under paragraph (a) of this clause, the following additional data is required:

   1) Date originally placed in service.
   2) Item condition.

(e) The data required in paragraphs (c) and (d) of this clause shall be delivered to the

NASA center receiving activity listed below:

NASA Johnson Space Center
Central Receiving, Bldg. 420
2101 NASA Parkway
Houston, TX 77058-3696

(f) The contractor shall include the substance of this clause, including this paragraph (f), in all subcontracts that require delivery of equipment.

(End of Clause)

G.9 1852.245-75 PROPERTY MANAGEMENT CHANGES (JAN 2011)

(a) The Contractor shall submit any changes to standards and practices used for management and control of Government property under this contract to the assigned property administrator prior to making the change whenever the change —

1) Employs a standard that allows increase in thresholds or changes the timing for reporting loss, damage, or destruction of property;
2) Alters physical inventory timing or procedures;
3) Alters recordkeeping practices;
4) Alters practices for recording the transport or delivery of Government property; or
5) Alters practices for disposition of Government property.

(End of Clause)

G.10 1852.245-76 LIST OF GOVERNMENT PROPERTY FURNISHED PURSUANT TO FAR 52.245-1 (JAN 2011)

For performance of work under this contract, the Government will make available Government property identified below or in Attachment J-4 Government Furnished Property of this contract on a no charge-for-use basis pursuant to the clause at FAR 52.245–1, Government Property, as incorporated in this contract. The Contractor shall use this property in the performance of this contract at the Johnson Space Center, contractor facilities, and at other location(s) as may be approved by the Contracting Officer. Under FAR 52.245–1, the Contractor is accountable for the identified property.

(End of Clause)

G.11 1852.245-78 PHYSICAL INVENTORY OF CAPITAL PERSONAL PROPERTY (JAN 2011)

(a) In addition to physical inventory requirements under the clause at FAR 52.245–1, Government Property, as incorporated in this contract, the Contractor shall conduct annual physical inventories for individual property items with an acquisition cost exceeding $100,000.

1) The Contractor shall inventory—
   i) Items of property furnished by the Government;
   ii) Items acquired by the Contractor and titled to the Government under the clause at FAR 52.245–1;
   iii) Items constructed by the Contractor and not included in the deliverable, but titled to the Government under the clause at FAR 52.245–1; and
   iv) Complete but undelivered deliverables.

2) The Contractor shall use the physical inventory results to validate the property record data, specifically location and use status, and to prepare summary reports of inventory

as described in paragraph (c) of this clause.

(b) Unless specifically authorized in writing by the Property Administrator, the inventory shall be performed and posted by individuals other than those assigned custody of the items, responsibility for maintenance, or responsibility for posting to the property record. The Contractor may request a waiver from this separation of duties requirement from the Property Administrator, when all of the conditions in either (1) or (2) of this paragraph are met.

1) The Contractor utilizes an electronic system for property identification, such as a laser bar-code reader or radio frequency identification reader, and

i) The programs or software preclude manual data entry of inventory identification data by the individual performing the inventory; and
ii) The inventory and property management systems contain sufficient management controls to prevent tampering and assure proper posting of collected inventory data.

2) The Contractor has limited quantities of property, limited personnel, or limited property systems; and the Contractor provides written confirmation that the Government property exists in the recorded condition and location;

3) The Contractor shall submit the request to the cognizant property administrator and obtain approval from the property administrator prior to implementation of the practice.

(c) The Contractor shall report the results of the physical inventory to the property administrator within 10 calendar days of completion of the physical inventory. The report shall—

1) Provide a summary showing number and value of items inventoried; and

2) Include additional supporting reports of—

i) Loss in accordance with the clause at 52.245–1, Government Property;
ii) Idle property available for reuse or disposition; and
iii) A summary of adjustments made to location, condition, status, or user as a result of the physical inventory reconciliation.

(d) The Contractor shall retain auditable physical inventory records, including records supporting transactions associated with inventory reconciliation. All records shall be subject to Government review and/or audit.

(End of Clause)

G.12 52.204-91 SECURITY/BADGING REQUIREMENTS FOR FOREIGN NATIONAL VISITORS AND EMPLOYEES/REPRESENTATIVES OF FOREIGN CONTRACTORS (MAY 2013) (JSC PROCUREMENT INSTRUCTION)

(a) An employee of a domestic Johnson Space Center (JSC) contractor or its subcontractor who is not a U.S. citizen (foreign national) may not be admitted to the JSC site for purposes of performing work without special arrangements. In addition, all employees or representatives

of a foreign JSC contractor/subcontractor may not be admitted to the JSC site without special arrangements. For employees as described above, advance notice must be given to the Security Office of the host installation [JSC or White Sands Test Facility (WSTF)] at least three weeks prior to the scheduled need for access to the site so that instructions on obtaining access may be provided. Contractors should be aware that approval for access to the site and issuance of a badge may take much longer than three weeks and sufficient lead time must be allowed to accommodate the approval process.

(b) All visit/badge requests for persons described in (a) above must be entered Identity Management and Account Exchange (IdMAX) for acceptance, review, concurrence, and approval purposes. When an authorized company official requests a JSC or WSTF badge for site access, he/she is certifying that steps have been taken to ensure that its contractor or subcontractor employees, visitors, or representatives will not be given access to export-controlled or classified information for which they are not authorized. These individuals shall serve as the contractor's representative(s) in certifying that all visit/badge request forms are processed in accordance with JSC and WSTF security and export control procedures. No foreign national, representative, or resident alien contractor/subcontractor employee shall be granted access into JSC or WSTF until approved and processed through the IdMAX. Unescorted access will not be granted unless a favorable National Agency Check (NAC) has been completed by the JSC Security Office, and an approved NASA Foreign National Visitor Security/Technology Control Plan (STTCP), (previously called the Access Control Plan) has been submitted and approved.

(c) The contractor agrees that it will not employ for the performance of work onsite at JSC or WSTF any individuals who are not legally authorized to work in the United States. If the JSC International Visits Coordinator or the contracting officer has reason to believe that any employee of the contractor may not be legally authorized to work in the United States and/or on the contract, the contractor may be required to furnish copies of Form I-9 (Employment Eligibility Verification), U.S. Department of Labor Application for Alien Employment Certification, and any other type of employment authorization document.

The contractor agrees to provide the information requested by JSC or WSTF Security Office in order to comply with NASA policy directives and guidelines related to foreign visits to NASA facilities so that (1) the visitor/employee/ representative may be allowed access to JSC or other NASA centers for performance of this contract, (2) required investigations can be conducted, and (3) required annual or revalidation reports can be submitted to NASA Headquarters. All requested information must be submitted in a timely manner in accordance with instructions provided by JSC or any other center to be visited.

(End of clause)

G.13 52.216-92 SUBMISSION OF VOUCHERS FOR PAYMENT (MAY 2014) (JSC PROCUREMENT INSTRUCTION) (APPLICABLE TO FIXED PRICE AND COST REIMBURSEMENT)

(a) Except for classified vouchers, the Contractor shall submit interim and final cost vouchers electronically using the Department of Defense (DoD) Wide Area Work Flow (WAWF) system. Vouchers will be reviewed by the Defense Contract Audit Agency based upon a risk-based review process.

1) To access the DoD WAWF system, the Contractor shall be required to have a designated electronic business point of contact in the System for Award Management at http://www.acquisition.gov and be registered to use the DoD WAWF at https://wawf.eb.mil following the step-by-step procedures for self-registration available at this web site.

   NASA voucher payment information can be obtained at the NASA Shared Services Center (NSSC) Vendor Payment information web site at: https://www.nssc.nasa.gov/vendorpayment. For technical WAWF help, contact the WAWF helpdesk at 1-866-618-5988. For additional questions, contact the NSSC Customer Contact Center at 1-877-677-2123.

2) The Contractor shall ensure that the payment request includes appropriate contract line item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all required back-up documentation to support each payment request.

(b) Vouchers for payment of fee resulting from contract performance or provisional fee (if authorized under this contract) shall be prepared using a Standard Form (SF) 1034 and submitted electronically to the following address for payment:

E-mail address: NSSC-AccountsPayable@nasa.gov
Mailing address: NSSC - FMD Accounts Payable
Bldg. 1111, C Road
Stennis Space Center, MS 39529
Fax Number: 1-866-209-5415

(c) For both cost and fee voucher submissions, a concurrent copy of the voucher shall be provided electronically to the NASA Contracting Officer outside of WAWF. The Contracting Officer may designate other recipients as required.

(d) The NSSC is the designated billing office for cost and fee vouchers for purpose of the Prompt Payment clause of this contract.

(e) In the event that amounts are withheld from payment in accordance with terms 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.14 52.223-92 JSC HAZARDOUS MATERIALS USE (MAY 2009) (JSC PROCUREMENT INSTRUCTION)

(a) This clause is JSC-unique, and the requirements are in addition to any U.S. Environmental Protection Agency, U.S. Occupational Safety and Health Administration, or other state or Federal regulation or statute. Therefore, the following requirements do NOT supersede any statutory or regulatory requirements for any entity subject to this clause.

(b) "Hazardous materials," for the purposes of this clause, consist of the following:

1) Those materials defined as "highly hazardous chemicals" in Occupational Safety and

Health Administration Process Safety Management Regulation, 29 Code of Federal Regulation 1910.119, without regard for quantity.

2) Those "extremely hazardous substances" subject to the emergency planning requirements in the Environmental Protection Agency Emergency Planning and Community Right-to-Know Regulation, 40 Code of Federal Regulation 355, Part 355, without regard for quantity.
3) Those "hazardous substances" subject to the release notification requirements under Environmental Protection Agency's Emergency Planning and Community Right-to-Know Regulation, 40 Code of Federal Regulation 302.4, without regard for quantity.
4) Any radioisotope material or device that produces ionizing radiation.
5) Any Class II, III, or IV laser as defined by the American National Standards Institute No. Z136.1 (1986)
6) Any explosive or any pyrotechnics
7) Any pesticide.

(c) The contractor shall update the JSC inventory listing the identity and quantity of hazardous materials stored or used onsite at JSC for the performance of the contract.

(d) The contractor shall ensure that the proper training of its employees in the use and inherent hazards of these materials is accomplished prior to use.

(e) The contractor shall notify the JSC Occupational Health Branch (SD3) prior to any initial use or different application of these materials.

(f) The contractor shall use all hazardous materials properly and take all necessary precautions to ensure no harm is done to humans or the environment.

(g) The contractor shall insert the substance of this clause, including this Paragraph F with appropriate changes of designations of the parties, in subcontracts under which hazardous materials will be utilized, or may reasonably be expected to be utilized, onsite at JSC.

(h) In the event the contractor fails or refuses to comply with any aspect of this clause, such failure or refusal may be considered a material breach of this contract.

(End of Clause)

G.15 52.242-92 IDENTIFICATION OF EMPLOYEES (MAY 2013) (JSC PROCUREMENT INSTRUCTION)

At all times while on Government property, the contractor, subcontractors, their employees, and agents shall wear badges. These Badges will be issued at the following locations: NASA Badging & Visitor Control Office, located in Building 110 at the Johnson Space Center (JSC) 6:00 a.m. to 5:30 p.m. Monday through Friday excluding holidays; the Sonny Carter Training Facility (SCTF) and the Software Development Integration Laboratory (SDIL) 7:00 a.m. to 3:30 p.m. Monday through Friday excluding holidays; Ellington Field, Building 265, 7:00 a.m. to 11:00 a.m. Monday through Friday excluding holidays; and the Main Gate at the White Sands Test Facility (WSTF) Monday through Friday from 8:00 a.m. to 4:00 p.m. excluding holidays and off every other Friday due to 9/80 hour scheduling. WSTF visitor badges will be issued on a 7-day-a-week, 24-hour-a-day basis. Resident aliens and foreign nationals/representatives shall be issued green foreign national badges.

Each individual who wears a badge shall be required to sign personally for the badge. The contractor shall be held accountable for issued badges and all other related items and must assure that they are returned to the NASA Badging & Visitor Control Offices upon completion of work under the contract in accordance with Security Management Directive (SMD) 500-15, "Security Termination Procedures." Failure to comply with the NASA contractor termination procedures upon completion of the work (e.g., return of badges, decals, keys, Controlled Access Area cards, clearance terminations, JSC Public Key Infrastructure (PKI)/special program deletions, etc.) may result in final payment being delayed.

(End of Clause)

G.16 52.242-93 HUMAN RESEARCH POLICY AND PROCEDURES (SEP 2000) (JSC PROCUREMENT INSTRUCTION)

The contractor shall follow the human research policy and procedures stated in the current version (as of the effective date of the contract) of NASA Policy Directive 7100.8, "Protection of Human Research Subjects," and shall furnish to the contracting officer, upon request, copies of protocols and contractor documents showing contractor Human Research Committee approval of such protocols.

(End of Clause)

(End of Section)

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

The following contract clauses pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

NONE INCORPORATED BY REFERENCE

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

1852.208-81 RESTRICTIONS ON PRINTING AND DUPLICATING. (NOV 2004)

1852.223-75 MAJOR BREACH OF SAFETY OR SECURITY. (FEB 2002)

1852.223-76 FEDERAL AUTOMOTIVE STATISTICAL TOOL REPORTING. (JUL 2003) (APPLICABLE TO COST-REIMBURSEMENT)

1852.225-70 EXPORT LICENSES. (FEB 2000) - ALTERNATE I (FEB 2000)

1852.235-73 FINAL SCIENTIFIC AND TECHNICAL REPORTS. (DEC 2006) - ALTERNATE II (DEC 2005)

1852.244-70 GEOGRAPHIC PARTICIPATION IN THE AEROSPACE PROGRAM. (APR 1985)

1852.246-70 MISSION CRITICAL SPACE SYSTEM PERSONNEL RELIABILITY PROGRAM. (MAR 1997)

(End of Clause)

H.2 1852.209-71 LIMITATION OF FUTURE CONTRACTING (DEC 1988)

(a) The Contracting Officer (CO) 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:

1) Impaired objectivity. The potential OCI is that a successful prime contractor (including a newly-formed joint venture) or first tier subcontractor having a financial interest in existing contracts for NASA spacecraft, spacecraft instruments, flight

software, and/or ground networks systems will have a bias that may influence its exercise of judgment in performing the work under the HHPC contract. There is a presumption that Offerors having such an impaired objectivity OCI will be ineligible for award, though the Government recognizes that an acceptable OCI mitigation strategy may be presented that overcomes this presumption;

2) Biased Ground Rules. There is a concern that the successful Offeror in performing studies, analyses, and specification/requirements under this contract will have an unfair competitive advantage in future competitions that use or rely on this HHPC work. There is a presumption that Offerors having such a biased ground rules OCI will be ineligible for award, though the Government recognizes that an acceptable OCI mitigation strategy may be presented that overcomes this presumption; and

3) Unequal Access to Information. There is a concern that the contractor will acquire nonpublic information (including proprietary and/or commercially-sensitive information) in performing the contract that may provide the contractor will an unfair competitive advantage in later competitions for a Government contract.

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

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

2) To the extent that the work under this contract requires access to proprietary, business confidential, or financial data of other companies, and as long as 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.3 REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFEROR

The completed provision FAR 52.204-8, annual Representations and Certifications, including any amended representation(s) made at paragraph (b) of the provision; and other representations, certifications and other statements contained as set forth in the Contractor's proposal dated **OFI** are hereby incorporated into the resultant contract by reference with the same force and effects as if it were given in full text reference in this resulting contract.

(End of Clause)

H.4 1852.216-80 TASK ORDERING PROCEDURE (OCT 1996)

(a) Only the Contracting Officer may issue Task/Delivery Orders to the Contractor, providing specific authorization or direction to perform work within the scope of the contract and as specified in the schedule. The Contractor may incur costs under this contract in performance of Task/Delivery Orders and Task/Delivery Order modifications issued in accordance with this clause. No other costs are authorized unless otherwise specified in the contract or expressly authorized by the Contracting Officer.

(b) Prior to issuing a task, the Contracting Officer will provide the Contractor with the following data:
   1) A functional description of the work identifying the objectives or results desired from the contemplated Task/Delivery Order.
   2) Proposed performance standards to be used as criteria for determining whether the work requirements have been met.
   3) A request for a task plan from the Contractor to include the technical approach, period of performance, appropriate cost information, and any other information required to determine the reasonableness of the Contractor's proposal.

(c) Within five calendar days after receipt of the Contracting Officer's request, the Contractor shall submit a task plan conforming to the request.

(d) After review and any necessary discussions, the Contracting Officer may issue a Task/Delivery Order to the Contractor containing, at a minimum, the following:
   1) Date of the order.
   2) Contract number and order number.
   3) Functional description of the work identifying the objectives or results desired from the Task/Delivery Order, including special instructions or other information necessary for performance of the task.
   4) Performance standards, and where appropriate, quality assurance standards.
   5) Maximum dollar amount authorized (cost and fee or price). This includes allocation of award fee among award fee periods, if applicable.
   6) Any other resources (travel, materials, equipment, facilities, etc.) authorized.
   7) Delivery/performance schedule including start and end dates.
   8) If contract funding is by individual Task/Delivery Order, accounting and appropriation data.

(e) The Contractor shall provide acknowledgment of receipt to the Contracting Officer within one business day after receipt of the Task/Delivery Order.

(f) If time constraints do not permit issuance of a fully defined Task/Delivery Order in accordance with the procedures -described in paragraphs (a) through (d), a Task/Delivery Order which includes a ceiling price may be issued.

(g) The Contracting Officer may amend Task/Delivery Orders in the same manner in which they were issued.

(h) In the event of a conflict between the requirements of the Task/Delivery Order and the Contractor's approved task plan, the Task/Delivery Order shall prevail.

(End of Clause)

H.5 1852.223-70 SAFETY AND HEALTH (APR 2002)

(a) Safety is the freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect: (1) the public, (2) astronauts and pilots, (3) the NASA workforce (including contractor employees working on NASA contracts), and (4) high-value equipment and property.

(b) The Contractor shall take all reasonable safety and occupational health measures in performing this contract. The Contractor shall comply with all Federal, State, and local laws applicable to safety and occupational health and with the safety and occupational health standards, specifications, reporting requirements, and any other relevant requirements of this contract.

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

(d) The Contractor shall immediately notify and promptly report to the Contracting Officer or a designee any accident, incident, or exposure resulting in fatality, lost-time occupational injury, occupational disease, contamination of property beyond any stated acceptable limits set forth in the contract Schedule; or property loss of $25,000 or more, or Close Call (a situation or occurrence with no injury, no damage or only minor damage (less than $1,000) but possesses the potential to cause any type of mishap, or any injury, damage, or negative mission impact) that may be of immediate interest to NASA, arising out of work performed under this contract. The Contractor is not required to include in any report an expression of opinion as to the fault or negligence of any employee. In addition, service contractors (excluding construction contracts) shall provide quarterly reports specifying lost-time frequency rate, number of lost-time injuries, exposure, and accident/incident dollar losses as specified in the contract Schedule.

(e) The Contractor shall investigate all work-related incidents, accidents, and Close Calls, to the extent necessary to determine their causes and furnish the Contracting Officer a report, in such form as the Contracting Officer may require, of the investigative findings and proposed or completed corrective actions.

(f)

1) The Contracting Officer may notify the Contractor in writing of any noncompliance with this clause and specify corrective actions to be taken. When the Contracting Officer becomes aware of noncompliance that may pose a serious or imminent danger to safety and health of the public, astronauts and pilots, the NASA workforce (including contractor employees working on NASA contracts), or high value mission critical equipment or property, the Contracting Officer shall notify the Contractor orally, with written confirmation. The Contractor shall promptly take and report any

necessary corrective action.

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

(g) The Contractor (or subcontractor or supplier) shall insert the substance of this clause, including this paragraph (g) and any applicable Schedule provisions and clauses, with appropriate changes of designations of the parties, in all solicitations and subcontracts of every tier, when one or more of the following conditions exist:

1) The work will be conducted completely or partly on premises owned or controlled by the Government.
2) The work includes construction, alteration, or repair of facilities in excess of the simplified acquisition threshold.
3) The work, regardless of place of performance, involves hazards that could endanger the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), or high value equipment or property, and the hazards are not adequately addressed by Occupational Safety and Health Administration (OSHA) or Department of Transportation (DOT) regulations (if applicable).
4) When the Contractor (or subcontractor or supplier) determines that the assessed risk and consequences of a failure to properly manage and control the hazard(s) warrants use of the clause.

(h) The Contractor (or subcontractor or supplier) may exclude the provisions of paragraph (g) from its solicitation(s) and subcontract(s) of every tier when it determines that the clause is not necessary because the application of the OSHA and DOT (if applicable) regulations constitute adequate safety and occupational health protection. When a determination is made to exclude the provisions of paragraph (g) from a solicitation and subcontract, the Contractor must notify and provide the basis for the determination to the Contracting Officer. In subcontracts of every tier above the micro-purchase threshold for which paragraph (g) does not apply, the Contractor (or subcontractor or supplier) shall insert the substance of paragraphs (a), (b), (c), and (f) of this clause).

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

(j) The contractor shall continually update the safety and health plan when necessary. In particular, the Contractor shall furnish a list of all hazardous operations to be performed, and a list of other major or key operations required or planned in the performance of the contract, even though not deemed hazardous by the Contractor. NASA and the Contractor shall jointly decide which operations are to be considered hazardous, with NASA as the final authority. Before hazardous operations commence, the Contractor shall submit for NASA concurrence -

1) Written hazardous operating procedures for all hazardous operations; and/or
2) Qualification standards for personnel involved in hazardous operations.

(End of Clause)

H.6 52.219-90 SMALL BUSINESS SUBCONTRACTING GOALS (OCT 2006)

For purposes of this clause, the terms, "HUBZone Small Business Concern," "Small Disadvantaged Business Concern," "Service-Disabled, Veteran-Owned Small Business Concern: "Veteran-Owned Small Business Concern," "Women-Owned Small Business Concern," and "Minority Serving Institutions (MSI)" are defined in paragraph 2.101 of the Federal Acquisition Regulation.

The total small business goal, expressed as a percent of total contract value including options, is **OFI** percent. The small business percentage goal includes the following goals expressed as a percent of total contract value:

Small Disadvantaged Business Concerns	**OFI** percent
Woman-Owned Small Business Concerns	**OFI** percent
HUBZone Small Business Concerns	**OFI** percent
Veteran-Owned Small Business Concern	**OFI** percent
Service-Disabled, Veteran-Owned Small Business Concern	**OFI** percent
Minority Serving Institutions	**OFI** percent

(End of Clause)

H.7 1852.228-76 CROSS-WAIVER OF LIABILITY FOR INTERNATIONAL SPACE STATION ACTIVITIES (OCTOBER 2012)

(a) The Intergovernmental Agreement Among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America concerning Cooperation on the Civil International Space Station (IGA) for the International Space Station (ISS) contains a cross-waiver of liability provision to encourage participation in the exploration, exploitation, and use of outer space through the ISS. The objective of this clause is to extend this cross-waiver of liability to NASA contracts in the interest of encouraging participation in the exploration, exploitation, and use of outer space through the International Space Station (ISS). The Parties intend that this cross-waiver of liability be broadly construed to achieve this objective.

(b) As used in this clause, the term:

1) "Agreement" refers to any NASA Space Act agreement that contains the cross-waiver of liability provision authorized by 14 CFR Part 1266.102.
2) "Damage" means:
   i) Bodily injury to, or other impairment of health of, or death of, any person;
   ii) Damage to, loss of, or loss of use of any property;
   iii) Loss of revenue or profits; or
   iv) Other direct, indirect, or consequential Damage.
3) "Launch Vehicle" means an object, or any part thereof, intended for launch, launched from Earth, or returning to Earth which carries Payloads or persons, or both.
4) "Partner State" includes each Contracting Party for which the IGA has entered into force, pursuant to Article 25 of the IGA or pursuant to any successor agreement. A Partner State includes its Cooperating Agency. It also includes any entity specified in

the Memorandum of Understanding (MOU) between NASA and the Government of Japan to assist the Government of Japan's Cooperating Agency in the implementation of that MOU.

5) "Party" means a party to a NASA Space Act agreement involving activities in connection with the ISS and a party that is neither the prime contractor under this contract nor a subcontractor at any tier.
6) "Payload" means all property to be flown or used on or in a Launch Vehicle or the ISS.
7) "Protected Space Operations" means all Launch or Transfer Vehicle activities, ISS activities, and Payload activities on Earth, in outer space, or in transit between Earth and outer space in implementation of the IGA, MOUs concluded pursuant to the IGA, implementing arrangements, and contracts to perform work in support of NASA's obligations under these Agreements. It includes, but is not limited to:
    i) Research, design, development, test, manufacture, assembly, integration, operation, or use of Launch or Transfer Vehicles, the ISS, Payloads, or instruments, as well as related support equipment and facilities and services; and
    ii) All activities related to ground support, test, training, simulation, or guidance and control equipment and related facilities or services. "Protected Space Operations" also includes all activities related to evolution of the ISS, as provided for in Article 14 of the IGA. "Protected Space Operations" excludes activities on Earth which are conducted on return from the ISS to develop further a Payload's product or process for use other than for ISS-related activities in implementation of the IGA.
8) "Related Entity" means:
    i) A contractor or subcontractor of a Party or a Partner State at any tier;
    ii) A user or customer of a Party or a Partner State at any tier; or
    iii) A contractor or subcontractor of a user or customer of a Party or a Partner State at any tier. The terms "contractor" and "subcontractor" include suppliers of any kind.
9) "Transfer Vehicle" means any vehicle that operates in space and transfers Payloads or persons or both between two different space objects, between two different locations on the same space object, or between a space object and the surface of a celestial body. A Transfer Vehicle also includes a vehicle that departs from and returns to the same location on a space object.

(c) Cross-waiver of liability:

1) The Contractor agrees to a cross-waiver of liability pursuant to which it waives all claims against any of the entities or persons listed in paragraphs (c)(1)(i) through (c)(1)(iv) of this clause based on Damage arising out of Protected Space Operations. This cross-waiver shall apply only if the person, entity, or property causing the Damage is involved in Protected Space Operations and the person, entity, or property damaged is damaged by virtue of its involvement in Protected Space Operations. The cross-waiver shall apply to any claims for Damage, whatever the legal basis for such claims, against:
    i) A Party as defined in (b)(5) of this clause;
    ii) A Partner State other than the United States of America;
    iii) A Related Entity of any entity identified in paragraph (c)(1)(i) or (c)(1)(ii) of this clause; or
    iv) The employees of any of the entities identified in paragraphs (c) (1) (i) through (c) (1) (iii) of this clause.

2) In addition, the contractor shall, by contract or otherwise, extend the cross-waiver of liability set forth in paragraph (c)(1) of this clause to its subcontractors at any tier by requiring them, by contract or otherwise, to:
    i) Waive all claims against the entities or persons identified in paragraphs (c)(1)(i) through (c)(1)(iv) of this clause; and
    ii) Require that their subcontractors waive all claims against the entities or persons identified in paragraphs (c) (1) (i) through (c) (1) (iv) of this clause.
3) For avoidance of doubt, this cross-waiver of liability includes a cross-waiver of claims arising from the Convention on International Liability for Damage Caused by Space Objects, which entered into force on September 1, 1972, where the person, entity, or property causing the Damage is involved in Protected Space Operations and the person, entity, or property damaged is damaged by virtue of its involvement in Protected Space Operations.
4) Notwithstanding the other provisions of this clause, this cross-waiver of liability shall not be applicable to:
    i) Claims between the Government and its own contractors or between its own contractors and subcontractors;
    ii) Claims made by a natural person, his/her estate, survivors or subrogees (except when a subrogee is a Party to an Agreement or is otherwise bound by the terms of this cross-waiver) for bodily injury to, or other impairment of health of, or death of, such person;
    iii) Claims for Damage caused by willful misconduct;
    iv) Intellectual property claims;
    v) Claims for Damage resulting from a failure of the contractor to extend the cross-waiver of liability to its subcontractors and related entities, pursuant to paragraph (c)(2) of this clause;
    vi) Claims by the Government arising out of or relating to the contractor's failure to perform its obligations under this contract.
5) Nothing in this clause shall be construed to create the basis for a claim or suit where none would otherwise exist.
6) This cross-waiver shall not be applicable when 49 U.S.C. Subtitle IX, Chapter. 701 are applicable.

(End of clause)

H.8 1852.228-78 CROSS-WAIVER OF LIABILITY FOR SCIENCE OR SPACE EXPLORATION ACTIVITIES UNRELATED TO THE INTERNATIONAL SPACE STATION (OCT 2012)

(a) The purpose of this clause is to extend a cross-waiver of liability to NASA contracts for work done in support of Agreements between Parties involving Science or Space Exploration activities that are not related to the International Space Station (ISS) but involve a launch. This cross-waiver of liability shall be broadly construed to achieve the objective of furthering participation in space exploration, use, and investment.

(b) As used in this clause, the term:
    1) "Agreement" refers to any NASA Space Act agreement that contains the cross-waiver of liability provision authorized in 14 CFR Part 1266.104.

    2) "Damage" means:

i) Bodily injury to, or other impairment of health of, or death of, any person;
ii) Damage to, loss of, or loss of use of any property;
iii) Loss of revenue or profits; or
iv) Other direct, indirect, or consequential Damage;

3) “Launch Vehicle” means an object, or any part thereof, intended for launch, launched from Earth, or returning to Earth which carries Payloads or persons, or both.

4) "Party" means a party to a NASA Space Act agreement for Science or Space Exploration activities unrelated to the ISS that involve a launch and a party that is neither the prime contractor under this contract nor a subcontractor at any tier hereof.

5) "Payload" means all property to be flown or used on or in a Launch Vehicle.

6) "Protected Space Operations" means all Launch or Transfer Vehicle activities and Payload activities on Earth, in outer space, or in transit between Earth and outer space in implementation of an Agreement for Science or Space Exploration activities unrelated to the ISS that involve a launch. Protected Space Operations begins at the signature of the Agreement and ends when all activities done in implementation of the Agreement are completed. It includes, but is not limited to:

i) Research, design, development, test, manufacture, assembly, integration, operation, or use of Launch or Transfer Vehicles, Payloads, or instruments, as well as related support equipment and facilities and services; and
ii) All activities related to ground support, test, training, simulation, or guidance and control equipment, and related facilities or services.

Protected Space Operations excludes activities on Earth which are conducted on return from space to develop further a payload's product or process other than for the activities within the scope of an Agreement.

7) "Related entity" means:
i) A contractor or subcontractor of a Party at any tier;
ii) A user or customer of a Party at any tier; or
iii) A contractor or subcontractor of a user or customer of a Party at any tier.
iv) The terms "contractors" and "subcontractors" include suppliers of any kind.

8) “Transfer Vehicle” means any vehicle that operates in space and transfers Payloads or persons or both between two different space objects, between two different locations on the same space object, or between a space object and the surface of a celestial body. A Transfer Vehicle also includes a vehicle that departs from and returns to the same location on a space object.

(c) Cross-waiver of liability:

1) The Contractor agrees to a waiver of liability pursuant to which it waives all claims against any of the entities or persons listed in paragraphs (c)(1)(i) through (c)(1)(iv) of this clause based on Damage arising out of Protected Space Operations. This cross-waiver shall apply only if the person, entity, or property causing the Damage is involved in Protected Space Operations and the person, entity, or property damaged is damaged by virtue of its involvement in Protected Space Operations. The waiver shall apply to any claims for Damage, whatever the legal basis for such claims,

against:

i) A Party;
ii) A Party to another NASA Agreement or contract that includes flight on the same Launch Vehicle;
iii) A Related Entity of any entity identified in paragraphs (c)(1)(i) or (c)(1)(ii) of this clause; or
iv) The employees of any of the entities identified in (c)(1)(i) through (iii) of this clause.

2) The Contractor agrees to extend the cross-waiver of liability as set forth in paragraph (c)(1) of this clause to its own subcontractors at all tiers by requiring them, by contract or otherwise, to:
   i) Waive all claims against the entities or persons identified in paragraphs (c)(1)(i) through (c)(1)(iv) of this clause; and
   ii) Require that their Related Entities waive all claims against the entities or persons identified in paragraphs (c)(1)(i) through (c)(1)(iv) of this clause.

3) For avoidance of doubt, this cross-waiver of liability includes a cross-waiver of claims arising from the Convention on International Liability for Damage Caused by Space Objects, entered into force on 1 September 1972, in which the person, entity, or property causing the Damage is involved in Protected Space Operations and the person, entity, or property damaged is damaged by virtue of its involvement in Protected Space Operations.

4) Notwithstanding the other provisions of this clause, this cross-waiver of liability shall not be applicable to:
   i) Claims between the Government and its own contractors or between its own contractors and subcontractors;
   ii) Claims made by a natural person, his/her estate, survivors, or subrogees (except when a subrogee is a Party to an Agreement or is otherwise bound by the terms of this cross-waiver) for bodily injury to, or other impairment of health, or death of such person;
   iii) Claims for Damage caused by willful misconduct;
   iv) Intellectual property claims;
   v) Claims for damages resulting from a failure of the contractor to extend the cross-waiver of liability to its subcontractors and related entities, pursuant to paragraph (c)(2) of this clause; or
   vi) Claims by the Government arising out of or relating to a contractor's failure to perform its obligations under this contract.

5) Nothing in this clause shall be construed to create the basis for a claim or suit where none would otherwise exist.
6) This cross-waiver shall not be applicable when 49 U.S.C. Subtitle IX, Chapter 701 is applicable.

(End of Clause)

H.9 1852.235-71 KEY PERSONNEL AND FACILITIES (MAR 1989)

(a) The personnel and/or facilities listed below are considered essential to the work being performed under this contract. Before removing, replacing, or diverting any of the listed or

specified personnel or facilities, the Contractor shall (1) notify the Contracting Officer reasonably in advance and (2) submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on this contract.

(b) The Contractor shall make no diversion without the Contracting Officer's written consent; provided that the Contracting Officer may ratify in writing the proposed change, and that ratification shall constitute the Contracting Officer's consent required by this clause.

(c) The list of personnel and/or facilities (shown below or as specified in the contract Schedule) may, with the consent of the contracting parties, be amended from time to time during the course of the contract to add or delete personnel and/or facilities.

Key Personnel:
Program Manager: OFI (Include full name)

(Include full name and position title for any additional Key Personnel Proposed) OFI

Key Facilities: OFI

(End of Clause)

H.10 1852.242-72 OBSERVANCE OF LEGAL HOLIDAYS (AUG 1992) - ALTERNATE I (SEP 1989)

(a) The on-site Government personnel observe the following holidays:

New Year's Day	Labor Day
Martin Luther King, Jr.'s Birthday	Columbus Day
President's Day	Veterans Day
Memorial Day	Thanksgiving Day
Independence Day	Christmas Day

Any other day designated by Federal statute, Executive order, or the President's proclamation.

(b) When any holiday falls on a Saturday, the preceding Friday is observed. When any holiday falls on a Sunday, the following Monday is observed. Observance of such days by Government personnel shall not by itself be cause for an additional period of performance or entitlement of compensation except as set forth within the contract.

(c) On-site personnel assigned to this contract shall not be granted access to the installation during the holidays in paragraph (a) of the clause, except as follows: the Contractor shall provide sufficient on-site personnel to perform round-the-clock requirements of critical work already in process, unless otherwise instructed by the Contracting Officer or authorized representative. If the Contractor's on-site personnel work during a holiday other than those in paragraph (a) of this clause, no form of holiday or other premium compensation shall be reimbursed as either a direct or indirect cost. However, this does not preclude reimbursement for authorized overtime work that would have been overtime regardless of the status of the day as a holiday.

(d) The Contractor shall place identical requirements, including this paragraph, in all subcontracts that require performance of work on-site, unless otherwise instructed by the Contracting Officer.

(End of Clause)

H.11 52.223-93 ENVIRONMENTAL AND ENERGY CONSERVATION REQUIREMENTS (FEB 2011) (JSC PROCUREMENT INSTRUCTION)

(a) The Contractor shall ensure that all work performed and equipment used to fulfill the requirements of this contract are in compliance with all Federal, state, and local regulations and public laws, and the following NASA JSC directives: JPD 8500.1, JSC Environmental Excellence Policy; JPR 8550.1, JSC Environmental Compliance Procedural Requirements; JPR 8553.1, JSC Environmental Management System Manual; JWI 8553.1, EMS Aspect/Impact Assessment and EMP Process; NPR 8570.1, Energy Efficiency and Water Conservation; and JWI 8570.1, Energy Conservation. The Contractor shall provide data on affirmative procurement, waste reduction activity, energy efficient product procurement, and ozone depleting substances in accordance with DRD HHPC-MGMT-13, Environmental and Energy Consuming Product Compliance Reports.

(b) The Government remains the owner and operator of record for all environmental activities conducted at NASA owned properties unless otherwise documented in a signed agreement between NASA and the Contractor. The Contractor is advised that activities performed at JSC and associated facilities are subject to Federal, state and local regulatory agency inspections to review compliance with environmental laws and regulations. For on-site issues, JSC's Environmental Office will be the single point of contact with Federal and state regulatory agencies and their representatives unless otherwise directed by the Contracting Officer or the Environmental Office. The Contractor shall immediately notify the JSC Environmental Office when contacted by external regulatory agency representatives and shall cooperate fully. The Contractor shall complete, maintain, and make available to the Contracting Officer, JSC Environmental Office, JSC Energy Manager, or regulatory agency personnel all documentation relating to environmental compliance matters under applicable laws. The Contractor shall immediately notify the JSC Environmental Office upon issuance of a Notice of Violation or noncompliance to the Contractor.

(c) Should a Notice of Violation, Notice of Noncompliance, Notice of Deficiency, or similar regulatory agency notice be issued to the Government as a facility owner/operator on account of the actions or inactions of the Contractor or one of its subcontractors in the performance of work under this contract, the Contractor shall fully cooperate with the Government in correcting any problems and defending against regulatory assessment of any civil fines or penalties arising out of such actions or inactions.

(End of clause)

H.12 52.242-94 ADMINISTRATIVE LEAVE (SEP 2008) (JSC PROCUREMENT INSTRUCTION)

(a) When the NASA installation grants administrative leave to its Government employees (e.g., as a result of inclement weather, potentially hazardous conditions, or other special circumstances), the following personnel should also be dismissed upon notification of a center closure provided by the Contracting Officer:

1) Contractor personnel working on-site; and
2) Contractor personnel dedicated to the contract effort who are
   i) working off-site within 10 miles of JSC; and
   ii) unable to perform their NASA contract duties at their off-site location because their normal place of business has been or is expected to be negatively impacted by an emergency situation (e.g. has sustained damage, has been evacuated, etc.)

However, the contractor shall provide sufficient on-site personnel to perform round-the-clock requirements of critical work already in process, unless otherwise instructed by the Contracting Officer or authorized representative.

(b) Administrative leave granted under this clause shall be subject to modification or termination by the Contracting Officer and in all instances shall be subject to the availability of funds. The cost of salaries and wages to the Contractor for the period of any such excused absence shall be a reimbursable item of cost under this contract for effected employees in accordance with the Contractor's established accounting policy.

1) If a labor hour-based contract, administrative leave granted under this clause shall be accounted for consistent with productive hours under this contract for employees in accordance with the Contractor's established accounting policy.
2) For fixed price contracts based on other than labor hours for deliverables, the Contracting Officer and Contractor shall as a precondition to any reimbursement negotiate an advanced agreement to determine the appropriate method in which to grant administrative leave under this clause.
3) All invoices requesting payment under this clause shall be marked as “Administrative Leave in accordance with 52.242-94, Administrative Leave.” All such invoices paid will be subject to review, audit, and revision when routine operations re-commence.

(c) The Contractor shall include this clause in all services subcontracts that include personnel in the categories described in (a) above.

(End of Clause)

H.13 ASSOCIATE CONTRACTOR AGREEMENTS (ACA) FOR HHPC ACTIVITIES

(a) The success of HHPC is dependent on the efforts of multiple Contractors. The Contractor may develop, maintain and adhere to potential ACAs with the following contracts and their successors, if necessary to facilitate relationships to ensure their ability to meet HHPC requirements:

1) The contractors that provide IT support services at JSC (end user services, desktop

management, data center services, communication services, applications services, web based services, and media services):

ACES – Agency Consolidated End-User Services Contract
EPIC – Engineering Products Integration Contract

2) The contractor that provides facility services and maintenance at JSC:

COSS – Center Operations Support Services

3) The contractor that provides quality and safety support services to the S&MA Directorate at JSC:

SMAEC – Safety and Mission Assurance Engineering Contract
CSFO – Center Safety and Fire Operations Contract

4) The other contractor that provides support to the Human Health and Performance Directorate:

HHIMS – Human Health and Institutional Management Support

5) Contracts supporting other directorates, programs and offices at JSC which may interface with HHPC:

AMOS – Aircraft Maintenance and Operational Support
CAMS II - Calibration and Metrology Services II
MPCV - Orion Multi-Purpose Crew Vehicle
CRAVE II - Crew, Robotics, Avionics and Vehicle Equipment
FBMS - Financial and Business Management Services Contract
IMOCII- Integrated Mission Operations Contract
International Space Station (ISS) Vehicle Sustaining Engineering Contract
JETS - JSC Engineering, Technology, and Science Contract
SEETS - Specialized Engineering, Evaluation and Test Services

The Contractor may develop, maintain and adhere to ACA's with any other interfaces the Contractor deems necessary to avoid negatively impacting the HHPC contract work.

The Contractor shall make all ACAs available to the HHPC Contracting Officer (CO) and Contracting Officer's Representative (COR).

(b) If necessary, the Contractor shall document agreements with other associate Contractors described in (a) above via associate Contractor agreements. The Government will not be a party in such Associate Contractor Agreements. All costs associated with such agreements are included in the negotiated price of this contract. Any additional ACA required shall be developed, modified and kept current at no additional cost to the Government. In order to achieve efficient and effective implementation of HHPC operations; the Contractor shall establish the means for coordination and exchange of information with associate Contractors. The information to be exchanged shall be that required by the Contractors in the execution of their respective contract requirements. The Contractors are strongly encouraged to seek out and foster cooperative efforts that will benefit HHPC with increased safety, efficiency, and

productivity.

(c) The Contractor is not relieved of any contract requirements or entitled to any adjustments to the contract terms because of the failure to resolve a disagreement with an associate Contractor. Liability for the improper disclosure of any proprietary data contained in or referenced by any agreement shall rest with the parties to the agreement, and not the Government.

(End of Clause)

H.14 MITIGATION OF ORGANIZATIONAL CONFLICTS OF INTEREST

(a) Mitigation plan. The Organizational Conflict of Interest Mitigation Plan and its obligations are hereby incorporated in the contract by reference.

(b) Changes.
1) Either the Contractor or the Government may propose changes to the Organizational Conflict of Interest Mitigation Plan. Such changes are subject to the mutual agreement of the parties and will become effective only upon incorporating the change into the plan by contract amendment.
2) In the event that the Government and the Contractor cannot agree upon a mutually acceptable change, the Government reserves the right to make a unilateral change to the OCI Plan as necessary, with the approval of the head of the contracting activity, subject to Contractor appeal as provided in the Disputes clause.

(c) Violation. The Contractor shall report any violation of the Organizational Conflict of Interest Mitigation Plan, whether by its own personnel or those of the Government or other contractors, to the Contracting Officer. This report shall include a description of the violation and the actions the Contractor has taken or proposes to take to mitigate and avoid repetition of the violation. After conducting such further inquiries and discussions as may be necessary, the Contracting Officer and the Contractor shall agree on appropriate corrective action, if any, or the Contracting Officer will direct corrective action.

(d) Breach. Any breach of the above restrictions or any nondisclosure or misrepresentation of any relevant facts required regarding organizational conflicts of interests to be disclosed may result in termination of this contract for default or other remedies as may be available under law or regulation.

(e) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (e), in subcontracts where the work includes or may include tasks related to the organizational conflict of interest. The terms “Contractor” and “Contracting Officer” shall be appropriately modified to reflect the change in parties and to preserve the Government’s rights.

(End of Clause)

H.15 DISCLOSURE OF ORGANIZATIONAL CONFLICT OF INTEREST AFTER CONTRACT AWARD

(a) If the Contractor identifies an actual or potential organizational conflict of interest that has not

already been adequately disclosed and resolved (or waived in accordance with FAR 9.503), the Contractor shall make a prompt and full disclosure in writing to the Contracting Officer. This disclosure shall include a description of the action the Contractor has taken or proposes to take in order or resolve the conflict. This reporting requirement also includes subcontractors actual or potential organizational conflicts of interest not adequately disclosed and resolved prior to award.

(b) Mitigation Plan. If there is a mitigation plan in the contract, the Contractor shall periodically update the plan, based on changes such as changes to the legal entity, the overall structure of the organization, subcontractor arrangements, contractor management, ownership, ownership relationships, or modification of the work scope.

(End of Clause)

H.16 CAPITAL EQUIPMENT

(a) Introduction.
The parties recognize that the Contractor may, from time to time, during the basic period of this contract, or during the option period(s), if options are exercised, purchase equipment, for the purpose of performing the work described in Section C. Any such capital equipment is subject to the provisions of this clause. The parties further recognize and agree that any such equipment will be capitalized and depreciated in accordance with the Contractor's established cost accounting practices and procedures, which must be in conformance to any applicable requirements and standards of this contract.

(b) Contractor Records.
The Contractor agrees to maintain complete records of capital equipment which is subject to this clause. Such records shall include date of purchase, purchase price, depreciation schedule, and amount of depreciation recorded from time to time. The Contractor further agrees to make these records available to the Contracting Officer promptly upon the latter's request, along with the Contractor's best estimate of the undepreciated balance of each item of equipment.

(c) Right to Purchase.
The parties agree that after the final period of performance has been determined, and the Government does not thereafter contract with the Contractor for the performance of the same, or substantially the same services contemplated by this contract, the Contractor will, upon request by the Contracting Officer, transfer title to any equipment identified by the Contracting Officer from the records referenced above, to either (a) the Government, or (b) a successor Contractor.

If a request for transfer of title to the Government is made, the Government agrees to recognize as allowable costs under the contract, for identified capital equipment, so much of the cost of the equipment that has not been depreciated as of the end of the contract. Payment of such undepreciated balances will be made no later than 60 days after transfer of title.

If a request for transfer of title to a successor Contractor is made, the Contractor agrees to transfer title to identified capital equipment to the successor Contractor for applicable undepreciated balances, subject to reasonable terms and conditions regarding payment and other matters to be agreed upon by the parties.

(d) Capital Equipment.
The Government may direct the Contractor to loan Contractor Furnished Property that the contractor has purchased to replace GFP on this contract to another Government entity or contractor in support of this contract. The contractor agrees to loan said equipment per a request from the Contracting Officer. The Government will ensure said equipment is returned in an operable state less fair wear and tear. Prior to the Government direction, the contractor will ensure that the loan of equipment does not impact Johnson Space Center operations.

(End of Clause)

H.17 NON-GOVERNMENT USE OF EQUIPMENT AND FACILITIES

The Government may allow non-government use of equipment [as defined in FAR 52.245-1 (APR 2012)] and/or facilities, by the contractor under this contract. If found appropriate by the Government through the Contracting Officer, the contractor and Government shall enter into a Reimbursable Space Act Agreement (RSAA) which will outline the benefit the Government will derive from the contractor's non-government use of designated property through rental receipts along with the terms and conditions related to the use of this equipment and/or facilities. Following the issuance of the RSAA, the contractor shall prepare a "Non-government Use of Equipment and/or Facilities" Plan, consistent with this clause and the RSAA, which will further define the responsibilities of the contractor and the Government.

The contractor's use of such equipment and/or facilities for such purposes shall be subject to the terms and conditions of this contract, as well as the terms and conditions outlined in the RSAA.

The Government recognizes the benefit it derives from the contractor's non-government use of designated equipment and/or facilities through rental receipts as defined under the RSAA and that this benefit through the contractor's ability to provide non-government use services to its customers is dependent upon the reliability of the contractor's access to the designated equipment and/or facilities.

The Contracting Officer shall have the authority to withdraw the permission granted for non-government use of the designated equipment and/or facilities at any time by giving a 30 days written notification.

The equipment and/or facilities authorized for non-Government use along with the terms and conditions for the use of this designated equipment and/or facilities will be set forth in the RSAA. Any dispute associated with this clause and/or the contractor's exercise of its authority for non-governmental use of the designated equipment and/or facilities shall be subject to the "Disputes" clause of this contract.

In the event circumstances should arise in which the Government requires the use of the equipment and/or facilities, the Contracting Officer will direct that the Government work shall take precedence.

(End of Clause)

H.18 HANDLING OF DATA

It is anticipated that in the performance of this contract, the Contractor may have access to and use of NASA's sensitive medical, internal planning, budget, accounting, or financial data. The

Contractor agrees to use, copy, or disclose such data, or any other data arguably within these categories, only for contract purposes, and not to use or disclose such data without prior written permission from the Contracting Officer.

(End of Clause)

H.19 SUBCONTRACTING WITH RUSSIAN ENTITIES FOR GOODS AND/OR SERVICES

(a) Definitions: In this provision:

1) The term "Russian entities" means:
   - i) Russian persons, or
   - ii) Entities created under Russian law or owned, in whole or in part, by Russian persons or companies including, but not limited to, the following:
   - iii) The Russian Federal Space Agency (Roscosmos),
   - iv) Any organization or entity under the jurisdiction or control of
   - v) Roscosmos, or
   - vi) Any other organization, entity, or element of the Government of the Russian Federation.

2) The term "extraordinary payments" means payments in cash or in kind made or to be made by the United States Government prior to July 1, 2016, for work to be performed or services to be rendered prior to that date necessary to meet United States obligations under the Agreement Concerning Cooperation on the Civil International Space Station, with annex, signed at Washington January 29, 1998, and entered into force March 27, 2001, or any protocol, agreement, memorandum of understanding, or contract related thereto.

(b) This clause implements the reporting requirement in section 6(i) of the Iran, North Korea, and Syria Nonproliferation Act. The provisions of this clause are without prejudice to the question of whether the Contractor or its subcontractor(s) are making extraordinary payments under section 6(a) or fall within the exceptions in section 7(1) (B) of the Act. NASA has applied the restrictions in the Act to include funding of Russian entities via U.S. Contractors.

(c) The Contractor shall not subcontract with Russian entities without prior written approval from the Contracting Officer. In order to obtain this written approval to subcontract with any Russian entity as defined in paragraphs (a), the Contractor shall provide the Contracting Officer with the following information related to each planned new subcontract and any change to an existing subcontract with entities that fit the description in paragraph (a):

1) A detailed description of the subcontracting entity, including its name, address, and a point of contact, as well as a detailed description of the proposed subcontract including the specific purpose of payments that will made under the subcontract.

2) The Contractor shall provide certification that the subcontracting entity is not, at the date of the subcontract approval request, on any of the lists of proscribed denied parties, specially designated nationals and entities of concern found at:

BIS's Listing of Entities of Concern (see http://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern)

BIS's List of Denied Person's List (see http://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern/denied-persons-list)

OFAC's List of Specially Designated Nationals (Adobe PDF format) (see http://www.treas.gov/offices/enforcement/ofac/sdn/t11sdn.pdf)

List of Unverified Persons in Foreign Countries (see http://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern/unverified-list)

State Department's List of Parties Statutorily Debarred for Arms Export Control Act Convictions (see http://pmddtc.state.gov/compliance/debar.html http://pmddtc.state.gov/compliance/debar.html)

State Department's Lists of Proliferating Entities (See http://www.state.gov/t/isn/c15231.htm)

3) Unless relief is granted by the Contracting Officer, the information necessary to obtain approval to subcontract shall be provided to the Contracting Officer 30 business days prior to executing any planned subcontract with entities defined in paragraph (a).

(d) After receiving approval to subcontract, the Contractor shall provide the Contracting Officer with a report every six months that documents the individual payments made to an entity in paragraph (a). The reports are due on July 15th and January 15th. The July 15th report shall document all of the individual payments made from the previous January through June. The January 15th report shall document all of the individual payments made from the previous July through December. The content of the report shall provide the following information for each time a payment is made to an entity in paragraph (a):

1) The name of the entity
2) The subcontract number
3) The amount of the payment
4) The date of the payment

(e) The CO may direct the Contractor to provide additional information for any other prospective or existing subcontract at any tier. The Contracting Officer may direct the Contractor to terminate for the convenience of the Government any subcontract at any tier with an entity described in paragraph (a), subject to an equitable adjustment.

(f) Notwithstanding FAR 52.216-7, "Allowable Cost and Payments," on or after June 30, 2016 the Contractor shall be responsible to make payments to entities defined in paragraph (a) of this provision. Any subcontract with entities defined in paragraph (a), therefore, shall be completed in sufficient time to permit the U.S. Government to make extraordinary payments on subcontracts with Russian entities on or before June 30, 2016.

The Contractor shall include the substance of this clause in all its subcontracts, and shall require such inclusion in all other subcontracts of any tier. The Contractor shall be responsible to obtain written approval from the Contracting Officer to enter into any tier subcontract that involves entities defined in paragraph (a).

(End of Clause)

H.20 GOVERNMENT-FURNISHED COMPUTER SOFTWARE AND RELATED TECHNICAL DATA

(a) Definitions. As used in this clause—

"Government-furnished computer software" or "GFCS" means computer software: (1) in the possession of, or directly acquired by, the Government whereby the Government has title or Government purpose license rights thereto; and (2) subsequently furnished to the Contractor for performance of a Government contract.

"Computer software," "data" and "technical data" have the meaning provided in the Federal Acquisition Regulations (FAR) Subpart 2.1—Definitions and the Rights in Data – General clause (FAR 52.227-14).

(b) The Government shall furnish to the Contractor the GFCS described in Section J-24 of this contract. The Government shall furnish related technical data needed for the intended use of the GFCS.

(c) Use of GFCS and related technical data. The Contractor shall use the GFCS and related technical data, and any modified or enhanced versions thereof, only for performing work under this contract unless otherwise provided for in this contract or approved by the Contracting Officer.

1) The Contractor shall not, without the express written permission of the Contracting Officer, reproduce, distribute copies, perform publicly, display publicly, release, or disclose the GFCS or related technical data to any person except for the performance of work under this contract.

2) The Contractor shall not modify or enhance the GFCS unless this contract specifically identifies the modifications and enhancements as work to be performed. If the GFCS is modified or enhanced pursuant to this contract, the Contractor shall provide to the Government the complete source code, if any, of the modified or enhanced GFCS.

3) Allocation of rights associated with any GFCS or related technical data modified or enhanced under this contract shall be defined by the FAR Rights in Data clause(s) included in this contract. If no Rights in Data clause is included in the contract, then the FAR Rights in Data – General (FAR 52.227-14) shall apply to all data first produced in the performance of this contract.

4) The Contractor may provide the GFCS, and any modified or enhanced versions thereof, to subcontractors as required for the performance of work under this contract. Before release of the GFCS, and any modified or enhanced versions thereof, to such subcontractors (at any tier), the Contractor shall insert, or require the insertion of, this clause, including this paragraph (c) (4), suitably modified to reflect the relationship of

the parties, in all such subcontracts (regardless of tier).

(d) The Government provides the GFCS in an "AS-IS" condition. The Government makes no warranty with respect to the serviceability and/or suitability of the GFCS for contract performance.

(e) The Contracting Officer may by written notice, at any time—
1) Increase or decrease the amount of GFCS under this contract;
2) Substitute other GFCS for the GFCS previously furnished, to be furnished, or to be acquired by the Contractor for the Government under this contract;
3) Withdraw authority to use the GFCS or related technical data; or
4) Instruct the Contractor to return or dispose of the GFCS and related technical data.

(f) Title to or license rights in GFCS. The Government shall retain title to or license rights in all GFCS. Title to or license rights in GFCS shall not be affected by its incorporation into or attachment to any data not owned by or licensed to the Government.

(g) Waiver of Claims and Indemnification. The Contractor agrees to waive any and all claims against the Government and shall indemnify and hold harmless the Government, its agents, and employees from every claim or liability, including attorney's fees, court costs, and expenses, arising out of, or in any way related to, the misuse or unauthorized modification, reproduction, release, performance, display, or disclosure of the GFCS and related technical data by the Contractor or by any person to whom the Contractor has released or disclosed such GFCS or related technical data.

(End of Clause)

H.21 CALIBRATION

The Contractor shall utilize the services of the JSC Measurement Systems and Calibration Laboratory (MSCL) to the maximum extent practicable for calibration of all instruments (Government property or contractor property) utilized under this contract, the total cost for maintenance of which would otherwise be a direct charge to the Government. The procedures for obtaining calibration of instruments are described in JWI 1282.11, "Calibration and Control of Measuring and Test Equipment (MTE)".

(End of Clause)

H.22 RECEIVING INSPECTION AND TEST FACILITY (RITF) UTILIZATION

The Contractor shall utilize the services of the RITF to the maximum extent practicable. Services provided by the RITF include: failure analysis; electrical, electronic, and electromechanical (EEE) part screening; metallic alloy testing for mechanical, chemical, and physical properties; fastener screening; and NASA unique and NASA approved IPC electronic workmanship training.

(End of Clause)

H.23 SPECIAL PROVISIONS REGARDING TASK/DELIVERY ORDER

ADJUSTMENTS

The Contracting Officer may amend Task/Delivery Orders in the same manner in which they were issued. Revisions to milestones, missions, schedules, and/or processing requirements may be made by the government, and shall be deemed within the scope of this contract. The parties agree that for any cost reimbursement Task/Delivery Order, with the exception of Level of Effort Task/Delivery Orders, no change shall give rise to an equitable adjustment (increase or decrease) to the Task/Delivery Order value (cost and fee), when the estimated cost (exclusive of fee) of any single event is $100,000 or less. When the aggregate amount of all events estimated to have a cost impact of $100,000 or less (exclusive of fee) reaches $5 million for the contract year, any additional change may be considered as the basis for an equitable adjustment. Equitable adjustments will not be considered if the contractor's actions are a significant contributing factor causing a cost increase.

(End of Clause)

H.24 52.207-5 OPTION TO PURCHASE EQUIPMENT (FEB 1995)

(a) The Government may purchase the equipment provided on a lease or rental basis under this contract. The Contracting Officer may exercise this option only by providing a unilateral modification to the Contractor. The effective date of the purchase will be specified in the unilateral modification and may be any time during the period of the contract, including any extensions thereto.

(b) Except for final payment and transfer of title to the Government, the lease or rental portion of the contract becomes complete and lease or rental charges shall be discontinued on the day immediately preceding the effective date of purchase specified in the unilateral modification required in paragraph (a) of this clause.

(c) The purchase conversion cost of the equipment shall be computed as of the effective date specified in the unilateral modification required in paragraph (a) of this clause, on the basis of the purchase price set forth in the contract, minus the total purchase option credits accumulated during the period of lease or rental, calculated by the formula contained elsewhere in this contract.

(d) The accumulated purchase option credits available to determine the purchase conversion cost will also include any credits accrued during a period of lease or rental of the equipment under any previous Government contract if the equipment has been on continuous lease or rental. The movement of equipment from one site to another site shall be "continuous rental."

(End of clause)

(End of Section)

SECTION I - CONTRACT CLAUSES

I.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

Clause(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Clauses incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the clause to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire clause.

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

52.202-1 DEFINITIONS (NOV 2013)

52.203-3 GRATUITIES (APR 1984)

52.203-5 COVENANT AGAINST CONTINGENT FEES (MAY 2014)

52.203-6 RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT (SEP 2006)

52.203-7 ANTI-KICKBACK PROCEDURES (MAY 2014)

52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (MAY 2014)

52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (MAY 2014)

52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (OCT 2010)

52.203-13 CONTRACTOR CODE OF BUSINESS ETHICS AND CONDUCT (APR 2010)

52.203-14 DISPLAY OF HOTLINE POSTER(S) (DEC 2007)

52.203-17 CONTRACTOR EMPLOYEE WHISTLEBLOWER RIGHTS AND REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS (Apr 2014)

52.204-2 SECURITY REQUIREMENTS (AUG 1996)

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON POSTCONSUMER FIBER CONTENT PAPER (MAY 2011)

52.204-7 SYSTEM FOR AWARD MANAGEMENT (JUL 2013)

52.204-9 PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL (JAN 2011)

52.204-10 REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS (JUL 2013)

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (AUG 2013)

52.210-1 MARKET RESEARCH (APR 2011)

52.211-5 MATERIAL REQUIREMENT (AUG 2000)

52.211-15 DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS (APR 2008)

52.215-2 AUDIT AND RECORDS - NEGOTIATION (OCT 2010)

52.215-8 ORDER OF PRECEDENCE - UNIFORM CONTRACT FORMAT (OCT 1997)

52.215-11 PRICE REDUCTION FOR DEFECTIVE CERTIFIED COST OR PRICING DATA - MODIFICATIONS (AUG 2011)

52.215-13 SUBCONTRACTOR CERTIFIED COST OR PRICING DATA - MODIFICATIONS (OCT 2010)

52.215-14 INTEGRITY OF UNIT PRICES (OCT 2010)

52.215-15 PENSION ADJUSTMENTS AND ASSET REVERSIONS (OCT 2010)

52.215-17 WAIVER OF FACILITIES CAPITAL COST OF MONEY (OCT 1997)

52.215-18 REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS (JUL 2005)

52.215-21 REQUIREMENTS FOR CERTIFIED COST OR PRICING DATA AND DATA OTHER THAN CERTIFIED COST OR PRICING DATA - MODIFICATIONS (OCT 2010) - ALTERNATE III (OCT 1997)
(c) Submit the cost portion of the proposal via the following electronic media: See Clause L.22.2, Table “Table L-3: Proposal Copies and Due Dates” for requirement

52.215-23 LIMITATIONS ON PASS-THROUGH CHARGES (OCT 2009)

52.216-7 ALLOWABLE COST AND PAYMENT (JUN 2013) (APPLICABLE TO COST-REIMBURSEMENT)
(3) The designated payment office will make interim payments for contract financing on the "30th" day after the designated billing office receives a proper payment request.

52.217-8 OPTION TO EXTEND SERVICES (NOV 1999)

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (OCT 2014)

52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2014)

52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN (OCT 2014) - ALTERNATE II (OCT 2001)

52.219-14 LIMITATIONS ON SUBCONTRACTING (NOV 2011)

52.219-16 LIQUIDATED DAMAGES - SUBCONTRACTING PLAN (JAN 1999)

52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION (JUL 2013)

52.222-1 NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)

52.222-2 PAYMENT FOR OVERTIME PREMIUMS (JUL 1990) (APPLICABLE TO COST-REIMBURSEMENT)

(a) (The use of overtime is authorized under this contract if the overtime premium does not exceed $25,000.

52.222-3 CONVICT LABOR (JUN 2003)

52.222-17 NONDISPLACEMENT OF QUALIFIED WORKERS (MAY 2014)

52.222-19 CHILD LABOR – COOPERATION WITH AUTHORITIES AND REMEDIES (JAN 2014)

52.222-21 PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)

52.222-26 EQUAL OPPORTUNITY (MAR 2007)

52.222-29 NOTIFICATION OF VISA DENIAL (JUN 2003)

52.222-35 EQUAL OPPORTUNITY FOR VETERANS (JULY 2014)

52.222-36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (OCT 2010)

52.222-37 EMPLOYMENT REPORTS ON VETERANS (JULY 2014)

52.222-40 NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT (DEC 2010)

52.222-41 SERVICE CONTRACT LABOR STANDARDS (MAY 2014)

52.222-43 FAIR LABOR STANDARDS ACT AND SERVICE CONTRACT ACT - PRICE ADJUSTMENT (MULTIPLE YEAR AND OPTION CONTRACTS) (MAY 2014) (APPLICABLE TO FIXED-PRICE)

52.222-50 COMBATING TRAFFICKING IN PERSONS (FEB 2009)

52.222-54 EMPLOYMENT ELIGIBILITY VERIFICATION (AUG 2013)

52.222-99, ESTABLISHING A MINIMUM WAGE FOR CONTRACTORS (JUNE 2014)(DEVIATION)

52.223-2 AFFIRMATIVE PROCUREMENT OF BIOBASED PRODUCTS UNDER SERVICE AND CONSTRUCTION CONTRACTS (SEPT 2013)

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

52.223-5 POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION (MAY 2011) -- ALTERNATE I (MAY 2011) (ALTERNATE II (MAY 2011)

52.223-6 DRUG-FREE WORKPLACE (MAY 2001)

52.223-10 WASTE REDUCTION PROGRAM (MAY 2011)

52.223-12 REFRIGERATION EQUIPMENT AND AIR CONDITIONERS (MAY 1995)

52.223-15 ENERGY EFFICIENCY IN ENERGY-CONSUMING PRODUCTS (DEC 2007)

52.223-16 ACQUISITION OF EPEAT - REGISTERED PERSONAL COMPUTER PRODUCTS (JUN 2014)

52.223-17 AFFIRMATIVE PROCUREMENT OF EPA-DESIGNATED ITEMS IN SERVICE AND CONSTRUCTION CONTRACTS (MAY 2008)

52.223-18 ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING (AUG 2011)

52.223-19 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT SYSTEMS (MAY 2011)

52.224-1 PRIVACY ACT NOTIFICATION (APR 1984)

52.224-2 PRIVACY ACT (APR 1984)

52.225-1 BUY AMERICAN ACT - SUPPLIES (MAY 2014)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUN 2008)

52.227-1 AUTHORIZATION AND CONSENT (DEC 2007)

52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (DEC 2007)

52.227-11 PATENT RIGHTS – OWNERSHIP BY THE CONTRACTOR (MAY 2014) AS MODIFIED BY NFS 1852.227-11

52.227-14 RIGHTS IN DATA--GENERAL (MAY 2014) (AS MODIFIED BY NASA FAR SUPPLEMENT 1852.227-14)

52.227-16 ADDITIONAL DATA REQUIREMENTS (JUN 1987)

52.228-5 INSURANCE - WORK ON A GOVERNMENT INSTALLATION (JAN 1997) (APPLICABLE TO FIXED-PRICE)

52.228-7 INSURANCE - LIABILITY TO THIRD PERSONS (MAR 1996) (APPLICABLE TO COST-REIMBURSEMENT)

52.229-3 FEDERAL, STATE, AND LOCAL TAXES (FEB 2013) (APPLICABLE TO FIXED-PRICE)

52.229-6 TAXES - FOREIGN FIXED-PRICE CONTRACTS (FEB 2013) (APPLICABLE TO FIXED-PRICE)

52.229-10 STATE OF NEW MEXICO GROSS RECEIPTS AND COMPENSATING TAX (APR 2003) (APPLICABLE TO COST-REIMBURSEMENT)

52.230-2 COST ACCOUNTING STANDARDS (MAY 2014)

52.230-6 ADMINISTRATION OF COST ACCOUNTING STANDARDS (JUN 2010)

52.232-1 PAYMENTS (APR 1984) (APPLICABLE TO FIXED-PRICE)

52.232-8 DISCOUNTS FOR PROMPT PAYMENT (FEB 2002) (APPLICABLE TO FIXED-PRICE)

52.232-9 LIMITATION ON WITHHOLDING OF PAYMENTS (APR 1984)

52.232-11 EXTRAS (APR 1984) (APPLICABLE TO FIXED-PRICE)

52.232-17 INTEREST (MAY 2014)

52.232-18 AVAILABILITY OF FUNDS (APR 1984)

52.232-19 AVAILABILITY OF FUNDS FOR THE NEXT FISCAL YEAR (APR 1984)
(Insert September 30th)

52.232-22 LIMITATION OF FUNDS (APR 1984) (APPLICABLE TO COST-REIMBURSEMENT)

52.232-23 ASSIGNMENT OF CLAIMS (MAY 2014)

52.232-25 PROMPT PAYMENT (JUL 2013) (APPLICABLE TO FIXED-PRICE)

52.232-25 PROMPT PAYMENT (OCT 2008) -- ALTERNATE I (FEB 2002) (APPLICABLE TO COST-REIMBURSEMENT)

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER - CENTRAL CONTRACTOR REGISTRATION (JUL 2013)

52.232-39 UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS (JUN 2013)

52.232-40 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS SUBCONTRACTORS (DEC 2013)

52.233-1 DISPUTES (MAY 2014) - ALTERNATE I (DEC 1991)

52.233-3 PROTEST AFTER AWARD (AUG 1996) (APPLICABLE TO FIXED-PRICE)

52.233-3 PROTEST AFTER AWARD (AUG 1996) - ALTERNATE I (JUN 1985) (APPLICABLE TO COST-REIMBURSEMENT)

52.233-4 APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM (OCT 2004)

52.237-2 PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT, AND VEGETATION (APR 1984)

52.237-3 CONTINUITY OF SERVICES (JAN 1991)

52.237-7 INDEMNIFICATION AND MEDICAL LIABILITY INSURANCE (JAN 1997)

52.239-1 PRIVACY OR SECURITY SAFEGUARDS (AUG 1996)

52.242-1 NOTICE OF INTENT TO DISALLOW COSTS (APR 1984)

52.242-3 PENALTIES FOR UNALLOWABLE COSTS (MAY 2014) (APPLICABLE TO COST-REIMBURSEMENT)

52.242-4 CERTIFICATION OF FINAL INDIRECT COSTS (JAN 1997) (APPLICABLE TO COST-REIMBURSEMENT)

52.242-13 BANKRUPTCY (JUL 1995)

52.243-1 CHANGES - FIXED-PRICE (AUG 1987) - ALTERNATE II (APR 1984) (APPLICABLE TO FIXED-PRICE)

52.243-2 CHANGES - COST-REIMBURSEMENT (AUG 1987) - ALTERNATE II (APR 1984) (APPLICABLE TO COST-REIMBURSEMENT)

52.244-2 SUBCONTRACTS (OCT 2010)

(d) "If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer's written consent before placing the following subcontracts: Subcontracts over $10M including options, NASA directed subcontracts, and other than unlimited rights and data subcontracts."

52.244-5 COMPETITION IN SUBCONTRACTING (DEC 1996)

52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (OCT 2014)

52.245-1 GOVERNMENT PROPERTY (APR 2012)

52.245-9 USE AND CHARGES (APR 2012)

52.246-24 LIMITATION OF LIABILITY - HIGH-VALUE ITEMS (FEB 1997) - ALTERNATE I (APR 1984)

52.246-25 LIMITATION OF LIABILITY - SERVICES (FEB 1997)

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

52.247-63 PREFERENCE FOR US-FLAG AIR CARRIERS (JUN 2003)

52.247-64 PREFERENCE FOR PRIVATELY OWNED US-FLAG COMMERCIAL VESSELS (FEB 2006)

52.248-1 VALUE ENGINEERING (OCT 2010)

52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (APR 2012) (APPLICABLE TO FIXED-PRICE)

52.249-6 TERMINATION (COST-REIMBURSEMENT) (MAY 2004) (APPLICABLE TO COST-REIMBURSEMENT)

52.249-8 DEFAULT (FIXED-PRICE SUPPLY AND SERVICE) (APR 1984) (APPLICABLE TO FIXED-PRICE)

52.249-14 EXCUSABLE DELAY (APR 1984) (APPLICABLE TO COST-REIMBURSEMENT)

52.251-1 GOVERNMENT SUPPLY SOURCES (APR 2012)

52.251-2 INTERAGENCY FLEET MANAGEMENT SYSTEM VEHICLES AND RELATED SERVICES (JAN 1991) (APPLICABLE TO COST-REIMBURSEMENT)

52.253-1 COMPUTER GENERATED FORMS (JAN 1991)

II **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

1852.203-70 DISPLAY OF INSPECTOR GENERAL HOTLINE POSTERS (JUN 2001)

1852.203-71 REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS (AUGUST 2014)

1852.216-89 ASSIGNMENT AND RELEASE FORMS (JUL 1997) (APPLICABLE TO COST-REIMBURSEMENT)

1852.219-74 USE OF RURAL AREA SMALL BUSINESSES (SEP 1990)

1852.219-75 SMALL BUSINESS SUBCONTRACTING REPORTING (MAY 1999)

1852.219-77 NASA MENTOR-PROTEGE PROGRAM (MAY 2009)

1852.219-79 MENTOR REQUIREMENTS AND EVALUATION (MAY 2009)

1852.223-74 DRUG-AND ALCOHOL-FREE WORKFORCE (MAR 1996)

1852.228-75 MINIMUM INSURANCE COVERAGE (OCT 1988)

1852.235-70 CENTER FOR AEROSPACE INFORMATION (DEC 2006)

1852.237-70 EMERGENCY EVACUATION PROCEDURES (DEC 1988)

1852.242-78 EMERGENCY MEDICAL SERVICES AND EVACUATION (APR 2001)

1852.243-71 SHARED SAVINGS (MAR 1997)

(End of Clause)

I.2 52.204-1 APPROVAL OF CONTRACT (DEC 1989)

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

(End of Clause)

I.3 52.209-9 UPDATES OF PUBLICLY AVAILABLE INFORMATION REGARDING RESPONSIBILTY MATTERS. (JUL 2013)

(a) The Contractor shall update the information in the Federal Awardee Performance and Integrity Information System (FAPIIS) on a semi-annual basis, throughout the life of the contract, by posting the required information in the System for Award Management database via http://www.acquisition.gov

(b) As required by section 3010 of the Supplemental Appropriations Act, 2010 (Pub. L. 111-212), all information posted in FAPIIS on or after April 15, 2011, except past performance reviews, will be publicly available. FAPIIS consists of two segments—
   1) The non-public segment, into which Government officials and the Contractor post information, which can only be viewed by—
      i) Government personnel and authorized users performing business on behalf of the Government; or
      ii) The Contractor, when viewing data on itself; and

   2) The publicly-available segment, to which all data in the non-public segment of FAPIIS is automatically transferred after a waiting period of 14 calendar days, except for—
      i) Past performance reviews required by subpart 42.15;
      ii) Information that was entered prior to April 15, 2011; or
      iii) Information that is withdrawn during the 14-calendar-day waiting period by the Government official who posted it in accordance with paragraph (c) (1) of this clause.

(c) The Contractor will receive notification when the Government posts new information to the Contractor's record.

1) If the Contractor asserts in writing within 7 calendar days, to the Government official who posted the information, that some of the information posted to the non-public segment of FAPIIS is covered by a disclosure exemption under the Freedom of Information Act, the Government official who posted the information must within 7 calendar days remove the posting from FAPIIS and resolve the issue in accordance with agency Freedom of Information procedures, prior to reposting the releasable information. The contractor must cite 52.209-9 and request removal within 7 calendar days of the posting to FAPIIS.

2) The Contractor will also have an opportunity to post comments regarding information that has been posted by the Government. The comments will be retained as long as the associated information is retained, i.e., for a total period of 6 years. Contractor comments will remain a part of the record unless the Contractor revises them.

3) As required by section 3010 of Pub. L. 111-212, all information posted in FAPIIS on or after April 15, 2011, except past performance reviews, will be publicly available.

(d) Public requests for system information posted prior to April 15, 2011, will be handled under Freedom of Information Act procedures, including, where appropriate, procedures promulgated under E.O. 12600.

(End of clause)

I.4 52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notifications in writing:
1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.
2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall—
1) Maintain current, accurate, and complete inventory records of assets and their costs;
2) Provide the ACO or designated representative ready access to the records upon request;
3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

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

(End of Clause)

I.5 52.216-18 ORDERING. (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of Task/Delivery Orders by the individuals or activities designated in the Schedule. Such orders may be issued from **October 1, 2015** through **September 30, 2020**.

(b) All Task/Delivery Orders are subject to the terms and conditions of this contract. In the event of conflict between a Task/Delivery Order and this contract, the contract shall control.

(c) If mailed, a Task/Delivery Order is considered "issued" when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the contract.

(End of Clause)

I.6 52.216-19 ORDER LIMITATIONS. (OCT 1995)

(a) Minimum order. When the Government requires supplies or services covered by this contract in an amount of less than $25,000, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) Maximum order. The Contractor is not obligated to honor -
   1) Any order for a single item in excess of $50,000,000;
   2) Any order for a combination of items in excess of $50,000,000; or
   3) A series of orders from the same ordering office within 30 days that together call for quantities exceeding the limitation in subparagraph (b) (1) or (2) of this section.

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

(d) Notwithstanding paragraphs (b) and (c) of this section, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within 10 calendar days after issuance, with written notice stating the Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

(End of Clause)

I.7 52.216-22 INDEFINITE QUANTITY (OCT 1995)

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

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

in the Schedule as the "maximum." The Government shall order at least the quantity of supplies or services designated in the Schedule as the "minimum."

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

(d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided that the Contractor shall not be required to make any deliveries under this contract after 12 months after the end of the period of performance.

(End of Clause)

I.8 RESERVED

I.9 52.222-42 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 2014)

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

This Statement is for Information Only:
It is not a Wage Determination

Employee Class	**Monetary Wage-Fringe Benefits**
TBD_____	TBD_____
TBD_____	TBD_____
TBD_____	TBD_____
TBD_____	TBD_____

See Attachment J-12 “Wage Determination” for reference purposes.

(End of Clause)

I.10 52.223-7 NOTICE OF RADIOACTIVE MATERIALS (JAN 1997)

(a) The Contractor shall notify the Contracting Officer or designee, in writing, five days prior to the delivery of, or prior to completion of any servicing required by this contract of, items containing either (1) radioactive material requiring specific licensing under the regulations issued pursuant to the Atomic Energy Act of 1954, as amended, as set forth in Title 10 of the Code of Federal Regulations, in effect on the date of this contract, or (2) other radioactive material not requiring specific licensing in which the specific activity is greater than 0.002

microcuries per gram or the activity per item equals or exceeds 0.01 microcuries. Such notice shall specify the part or parts of the items which contain radioactive materials, a description of the materials, the name and activity of the isotope, the manufacturer of the materials, and any other information known to the Contractor which will put users of the items on notice as to the hazards involved (OMB No. 9000-0107).

(b) If there has been no change affecting the quantity of activity, or the characteristics and composition of the radioactive material from deliveries under this contract or prior contracts, the Contractor may request that the Contracting Officer or designee waive the notice requirement in paragraph (a) of this clause. Any such request shall-

1) Be submitted in writing;
2) State that the quantity of activity, characteristics, and composition of the radioactive material have not changed; and
3) Cite the contract number on which the prior notification was submitted and the contracting office to which it was submitted.

(c) All items, parts, or subassemblies which contain radioactive materials in which the specific activity is greater than 0.002 microcuries per gram or activity per item equals or exceeds 0.01 microcuries, and all containers in which such items, parts or subassemblies are delivered to the Government shall be clearly marked and labeled as required by the latest revision of MIL-STD 129 in effect on the date of the contract.

(d) This clause, including this paragraph (d), shall be inserted in all subcontracts for radioactive materials meeting the criteria in paragraph (a) of this clause.

(End of Clause)

I.11 52.223-9 ESTIMATE OF PERCENTAGE OF RECOVERED MATERIAL CONTENT FOR EPA-DESIGNATED ITEMS. (MAY 2008)

(a) Definitions. As used in this clause -

"Postconsumer material" means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material."

"Recovered material" means waste materials and by-products recovered or diverted from solid waste, but the term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(b) The Contractor, on completion of this contract, shall -

1) Estimate the percentage of the total recovered material content for EPA-designated item(s) delivered and/or used in contract performance, including, if applicable, the percentage of post-consumer material content; and

2) Submit this estimate to the Contracting Officer.

(End of Clause)

I.12 52.223-11 OZONE-DEPLETING SUBSTANCES. (MAY 2001)

(a) Definition. Ozone-depleting substance, as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR part 82 as--
   1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or
   2) Class II, including, but not limited to, hydro chlorofluorocarbons.

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

Warning

*Contains (or manufactured with, if applicable) *TBD, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere.*

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

(End of Clause)

I.13 52.227-23 RIGHTS TO PROPOSAL DATA (TECHNICAL). (JUN 1987)

Except for data contained on pages **OFI**, it is agreed that as a condition of award of this contract, and notwithstanding the conditions of any notice appearing thereon, the Government shall have unlimited rights (as defined in the "Rights in Data—General" clause contained in this contract) in and to the technical data contained in the proposal dated **OFI**, upon which this contract is based.

(End of Clause)

I.14 52.229-8 TAXES - FOREIGN COST-REIMBURSEMENT CONTRACTS. (MAR 1990) (APPLICABLE TO COST-REIMBURSEMENT)

(a) Any tax or duty from which the United States Government is exempt by agreement with the Government of *[**TBD** on a required basis]*, or from which the Contractor or any subcontractor under this contract is exempt under the laws of *[**TBD** on a required basis]*, shall not constitute an allowable cost under this contract.

(b) If the Contractor or subcontractor under this contract obtains a foreign tax credit that reduces its Federal income tax liability under the United States Internal Revenue Code (Title 26, U.S. Code) because of the payment of any tax or duty that was reimbursed under this contract, the amount of the reduction shall be paid or credited at the time of such offset to the Government of the United States as the Contracting Officer directs.

(End of Clause)

I.15 52.247-67 SUBMISSION OF TRANSPORTATION DOCUMENTS FOR AUDIT. (FEB 2006)

(a) The Contractor shall submit to the address identified below, for prepayment audit, transportation documents on which the United States will assume freight charges that were paid--
   1) By the Contractor under a cost-reimbursement contract; and
   2) By a first-tier subcontractor under a cost-reimbursement subcontract thereunder.

(b) Cost-reimbursement Contractors shall only submit for audit those bills of lading with freight shipment charges exceeding $100. Bills under $100 shall be retained on-site by the Contractor and made available for on-site audits. This exception only applies to freight shipment bills and is not intended to apply to bills and invoices for any other transportation services.

(c) Contractors shall submit the above referenced transportation documents to:

TBD *at time of submittal*

(End of Clause)

I.16 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

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

http://www.acquisition.gov/far/

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

(End of Clause)

I.17 1852.204-75 SECURITY CLASSIFICATION REQUIREMENTS (SEP 1989)

Performance under this contract will involve access to and/or generation of classified information, work in a security area, or both, up to the level of SECRET. See FAR clause 52.204-2 (Security Requirements) in this contract and DD Form 254, Contract Security Classification Specification, Attachment J-14, DOD Contract Security Classification Cover Sheet.

(End of Clause)

I.18 1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (JAN 2011)

(a) The contractor shall protect the confidentiality, integrity, and availability of NASA Electronic Information and IT resources and protect NASA Electronic Information from unauthorized disclosure.

(b) This clause is applicable to all NASA contractors and sub-contractors that process, manage, access, or store unclassified electronic information, to include Sensitive But Unclassified (SBU) information, for NASA in support of NASA's missions, programs, projects and/or institutional requirements. Applicable requirements, regulations, policies, and guidelines are identified in the Applicable Documents List (ADL) provided in Attachment J-1. For policy information considered sensitive, the documents will be identified as such in the ADL and made available through the Contracting Officer.

(c) Definitions.

1) IT resources means any hardware or software or interconnected system or subsystem of equipment, that is used to process, manage, access, or store electronic information.
2) NASA Electronic Information is any data (as defined in the Rights in Data clause of this contract) or information (including information incidental to contract administration, such as financial, administrative, cost or pricing, or management information) that is processed, managed, accessed or stored on an IT system(s) in the performance of a NASA contract.
3) IT Security Management Plan--This plan shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract. Unlike the IT security plan, which addresses the IT system, the IT Security Management Plan addresses how the contractor will manage personnel and processes associated with IT Security on the instant contract.
4) IT Security Plan--this is a FISMA requirement; see the ADL for applicable requirements. The IT Security Plan is specific to the IT System and not the contract. Within 30 days after award, the contractor shall develop and deliver an IT Security Management Plan to the Contracting Officer; the approval authority will be included in the ADL. All contractor personnel requiring physical or logical access to NASA IT resources must complete NASA's annual IT Security Awareness training. Refer to the IT Training policy located in the IT Security Web site at http://www.nasa.gov/offices/ocio/itsecurity

(d) The contractor shall afford Government access to the Contractor's and subcontractors' facilities, installations, operations, documentation, databases, and personnel used in performance of the contract. Access shall be provided to the extent required to carry out a program of IT inspection (to include vulnerability testing), investigation and audit to safeguard against threats and hazards to the integrity, availability, and confidentiality of NASA Electronic Information or to the function of IT systems operated on behalf of NASA, and to preserve evidence of computer crime.

(e) At the completion of the contract, the contractor shall return all NASA information and IT resources provided to the contractor during the performance of the contract in accordance with retention documentation available in the ADL. The contractor shall provide a listing of all NASA Electronic information and IT resources generated in performance of the contract. At that time, the contractor shall request disposition instructions from the Contracting Officer. The Contracting Officer will provide disposition instructions within 30 calendar days of the contractor's request. Parts of the clause and referenced ADL may be waived by the contracting officer, if the contractor's ongoing IT security program meets or exceeds the requirements of NASA Procedural Requirements (NPR) 2810.1 in effect at time of award. The current version of NPR 2810.1 is referenced in the ADL. The contractor shall submit a written waiver request to the Contracting Officer within 30 days of award. The waiver request will be reviewed by the Center IT Security Manager. If approved, the Contractor Officer will notify the contractor, by

contract modification, which parts of the clause or provisions of the ADL are waived.

(f) The contractor shall insert this clause, including this paragraph in all subcontracts that process, manage, access or store NASA Electronic Information in support of the mission of the Agency.

(End of Clause)

I.19 1852.215-84 OMBUDSMAN. (NOV 2011) (ALTERNATE I) (JUNE 2000)

(a) An ombudsman has been appointed to hear and facilitate the resolution of concerns from Offerors, potential Offerors, and contractors during the pre-award and post-award phases of this acquisition. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the contracting officer, the Source Evaluation Board, or the selection official. Further, the ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the contracting officer for resolution.

(b) If resolution cannot be made by the contracting officer, interested parties may contact the installation ombudsman, whose name, address, telephone number, facsimile number, and e-mail address may be found at: http://prod.nais.nasa.gov/pub/pub_library/Omb.html. Concerns, issues, disagreements, and recommendations which cannot be resolved at the installation may be referred to the Agency ombudsman identified at the above URL. Please do not contact the ombudsman to request copies of the solicitation, verify offer due date, or clarify technical requirements. Such inquiries shall be directed to the Contracting Officer or as specified elsewhere in this document.

(c) If this is a task or delivery order contract, the ombudsman shall review complaints from contractors and ensure they are afforded a fair opportunity to be considered, consistent with the procedures of the contract.

(End of Clause)

I.20 1852.219-76 NASA 8 PERCENT GOAL (JUL 1997)

(a) Definitions.

"Historically Black Colleges or University," as used in this clause, means an institution determined by the Secretary of Education to meet the requirements of 34 CFR Section 608.2. The term also includes any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

"Minority institutions," as used in this clause, means an institution of higher education meeting the requirements of section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1135d-5(3)) which for the purposes of this clause includes a Hispanic-serving institution of higher education as defined in section 316(b)(1) of the Act (20 U.S.C. 1059c(b)(1)).

"Small disadvantaged business concern," as used in this clause, means a small business concern that (1) is at least 51 percent unconditionally owned by one or more individuals who are both socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more socially and economically disadvantaged individuals, and (2) has its management and daily business controlled by one or more such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more of these entities, which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR 124.

"Women-owned small business concern," as used in this clause, means a small business concern (1) which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women, and (2) whose management and daily business operations are controlled by one or more women.

(b) The NASA Administrator is required by statute to establish annually a goal to make available to small disadvantaged business concerns, Historically Black Colleges and Universities, minority institutions, and women-owned small business concerns, at least 8 percent of NASA's procurement dollars under prime contracts or subcontracts awarded in support of authorized programs, including the space station by the time operational status is obtained.

(c) The Contractor hereby agrees to assist NASA in achieving this goal by using its best efforts to award subcontracts to such entities to the fullest extent consistent with efficient contract performance.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as small disadvantaged business concerns, Historically Black Colleges and Universities, minority institutions, and women-owned small business concerns.

(End of Clause)

I.21 1852.225-71 RESTRICTION ON FUNDING ACTIVITY WITH CHINA. (FEB 2012)

(a) Definition - “China” or “Chinese-owned Company” means the People’s Republic of China, any company owned by the People’s Republic of China or any company incorporated under the laws of the People’s Republic of China.

(b) Public Laws 112-10, Section 1340(a) and 112-55, Section 539, restrict NASA from contracting to participate, collaborate, coordinate bilaterally in any way with China or a Chinese-owned company using funds appropriated on or after April 25, 2011. Contracts for commercial and non-developmental items are exempted from the prohibition because they constitute purchase of goods or services that would not involve participation, collaboration, or coordination between the parties.

(c) This contract may use restricted funding that was appropriated on or after April 25, 2011. The contractor shall not contract with China or Chinese-owned companies for any effort related to this contract except for acquisition of commercial and non-developmental items. If the contractor anticipates making an award to China or Chinese-owned companies, the contractor must contact the contracting officer to determine if funding on this contract can be used for that purpose.

(d) Subcontracts - The contractor shall include the substance of this clause in all subcontracts made hereunder.

(End of Clause)

I.22 1852.237-72 ACCESS TO SENSITIVE INFORMATION. (JUN 2005)

(a) As used in this clause, ``sensitive information'' refers to information that a Contractor has developed at private expense, or that the Government has generated that qualifies for an exception to the Freedom of Information Act, which is not currently in the public domain, and which may embody trade secrets or commercial or financial information, and which may be sensitive or privileged.

(b) To assist NASA in accomplishing management activities and administrative functions, the Contractor shall provide the services specified elsewhere in this contract.

(c) If performing this contract entails access to sensitive information, as defined above, the Contractor agrees to--

1) Utilize any sensitive information coming into its possession only for the purposes of performing the services specified in this contract, and not to improve its own competitive position in another procurement.

2) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

3) Allow access to sensitive information only to those employees that need it to perform services under this contract.

4) Preclude access and disclosure of sensitive information to persons and entities

outside of the Contractor's organization.

5) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in this contract and to safeguard it from unauthorized use and disclosure.

6) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

7) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(d) The Contractor will comply with all procedures and obligations specified in its Organizational Conflicts of Interest Mitigation Plan (DRD HHPC-MGMT-10), which this contract incorporates as a compliance document.

(e) The nature of the work on this contract may subject the Contractor and its employees to a variety of laws and regulations relating to ethics, conflicts of interest, corruption, and other criminal or civil matters relating to the award and administration of Government contracts. Recognizing that this contract establishes a high standard of accountability and trust, the Government will carefully review the Contractor's performance in relation to the mandates and restrictions found in these laws and regulations. Unauthorized uses or disclosures of sensitive information may result in termination of this contract for default, or in debarment of the Contractor for serious misconduct affecting present responsibility as a Government Contractor.

(f) The Contractor shall include the substance of this clause, including this paragraph (f), suitably modified to reflect the relationship of the parties, in all subcontracts that may involve access to sensitive information

(End of Clause)

I.23 1852.237-73 RELEASE OF SENSITIVE INFORMATION. (JUN 2005)

(a) As used in this clause, "Sensitive information" refers to information, not currently in the public domain, that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.

(b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at NFS 1852.237-72, Access to Sensitive Information.

(c)

1) The Contractor shall identify any sensitive information submitted in support of this

proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

"This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another source without restriction. The information subject to this restriction is contained in pages [insert page number(s)]."

Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

"Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document."

2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall consider the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at NFS 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.

(d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at NFS 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:

1) Comply with all specified procedures and obligations, including the Organizational Conflicts of Interest Mitigation Plan (DRD HHPC-MGMT-10), which the contract has incorporated as a compliance document.

2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.

3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.

4) Allow access to sensitive information only to those employees that need it to perform services under its contract.

5) Preclude access and disclosure of sensitive information to persons and entities

outside of the service provider's organization.

6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.

7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.

(e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at NFS 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures.

(f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.

(g) The Contractor shall insert this clause, including this paragraph (g); suitably modified to reflect the relationship of the parties, in all subcontracts that may require the furnishing of sensitive information.

(End of Clause)

(End of Section)

SECTION J – LIST OF ATTACHMENTS

LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

SECTION J

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Human Health and Performance Contract (HHPC)

Applicable Documents

Attachment J-1

Attachment J-1, Applicable Documents List (ADL) contains applicable documents for the contract. The contractor shall comply with these documents in performing contractual requirements. In the event that there is a conflict between the revision in this ADL and the applicable documents list in a task order, the contractor shall comply with the revision specified in the TDO.

The documents identified in Attachment J-1, ADL are cited within the body of this contract. Requirements written in these documents have the full force and effect as if their text were written in this contract to the extent that the requirements relate to context of the work to be performed within the scope of this contract. The contractor is required to perform work in accordance with the applicable documents listed below in their latest revision, including those Tier 2 documents listed as applicable within each document. The revisions listed below are latest revision as of the RFP release.

The technical standards referred to and utilized in the performance of this contract that were not created by the Government have copyrights and are available through the sponsoring professional organizations (e.g. ANSI, SAE, IPC). However, once selected, the HHPC contractor will be granted unfettered access to these standards through the NASA Standards and Technical Assistance Tool located at https://standards.nasa.gov.

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
AFI 48-123	Air Force (AF) Medical Examinations and Standards	Current Version
EA-WI-023	Project Management of GFE Flight Projects	Current Version
EA-WI-025	GFE Flight Project Software and Firmware Development	Current Version
HRP-47051	Human Research Program (HRP) Program Plan	Current Version
HRP-47052	HRP Requirements Document	Current Version
HRP-47053	HRP Science Management Plan	Current Version
HRP-47054	HRP Documentation Tree	Current Version
HRP-47057	International Space Station Medical Project (ISSMP) Project Management Plan	Current Version
HRP-47058	Space Radiation (SR) Element Management Plan	Current Version
HRP-47065	HRP Integrated Research Plan	Current Version
HRP-47067	Exploration Medical Capability Element Management Plan	Current Version
HRP-47069	HRP Unique Processes, Criteria and Guidelines (UPCG)	Current Version
HRP-47070	Behavioral Health and Performance Element Management Plan	Current Version
HRP-47071	Space Human Factors and Habitability (SHFH) Element Management Plan	Current Version
HRP-47078	Human Health Countermeasures (HHC) Element Management Plan	Current Version
HRP-47081	HRP Strategic Communication Plan	Current Version
HRP-47083	Life Sciences Data Archive (LSDA) Data Submission Agreement (DSA) Blank Book	Current Version
HRP-47084	Life Sciences Data Archive (LSDA) Data Management Plan (DMP)	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
HRP-47085	Life Sciences Data Archive (LSDA) Project Management Plan (PMP)	Current Version
HRP-47087	HRP Work Breakdown Structure Dictionary	Current Version
HRP-48000	Human Research Program Mishap Preparedness and Contingency Plan	Current Version
HRP-48001	Exploration Medical Capabilities Functional Requirements Document	Current Version
HRP-48002	Exploration Medical Capabilities Operational Concept Document	Current Version
JPR 1040.4	JSC Emergency Preparedness Plan (includes JSC Aircraft Mishap)	Current Version
JPR 1280.2	JSC Quality Manual	Current Version
JPR 1281.5	JSC Document and Data Control	Current Version
JPR 1281.7	JSC Control of Customer Property	Current Version
JPR 1281.15	JSC Identification, Handling, Storage, Packaging, Preservation, and Delivery	Current Version
JPR 1440.3	JSC Records Management Procedural Requirements	Current Version
JPR 1700.1	JSC Safety and Health Handbook	Current Version
JPR 1710.13	JSC Design, Inspection and Certification of Ground-Based Pressure Vessels and Pressurized Systems	Current Version
JPR 1800.3	JSC Decompression Sickness Manual	Current Version
JPR 1830.2	JSC Physiological Training Requirements	Current Version
JPR 1830.3	JSC Limitations Applicable to Personnel Exposed to Diving	Current Version
JPR 1860.2	JSC Radiological Health Manual	Current Version
JPR 2200.2	Release of JSC Scientific and Technical Information to External Audiences	Current Version
JPR 5322.1	JSC Contamination Control Requirements Manual	Current Version
JPR 7120.3	JSC Program/Project Management and Sytems Engineering	Current Version
JPR 7120.8	Lyndon B. Johnson Space Center Health and Medical Technical Authority Implementation	Current Version
JPR 7150.2	JSC Software Engineering Procedural Requirements	Current Version
JPR 8000.4	JSC Risk Management Plan	Current Version
JPR 8500.4	JSC Engineering Drawing System Manual	Current Version
JPR 8550.1	JSC Environmental Compliance Procedural Requirements	Current Version
JPR 8553.1	JSC Environmental Management System Manual	Current Version
JPR 8621.1	JSC Mishap Response Plan	Current Version
JPR 8715.2	JSC Safety Standard for Underwater Operations	Current Version
JPR 8730.2	JSC Fastener Integrity Testing Program	Current Version
JSC 17773	Preparing Hazard Analyses for JSC Ground Operations	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
JSC 26546 – All Volumes	Medical Operations Flight Support Training and Certification Plan	Current Version
JSC 26648	JSC Automated Information System User's Security Guide	Current Version
JSC 27384	Behavioral Health and Performance Program Plan: Definition and Implementation Guide	Current Version
JSC 28038	Nutritional Requirements for ISS Missions up to 360 Days	Current Version
JSC 28225	Human Health and Performance Directorate Certification of Flight Readiness (CoFR) Implementation Plan	Current Version
JSC 28330	Space Life Sciences Directorate Configuration Control Management Plan	Current Version
JSC 28484	Program Requirements Document for Johnson Space Center Non-Critical Government Furnished Equipment	Current Version
JSC 28566	Nutritional Status Assessment for Extended-Duration Space Flight	Current Version
JSC 28719	Emergency Medical Services (EMS) Plan for Russia	Current Version
JSC 28913	Medical Requirements Integration Document Introduction – The MRID Book	Current Version
JSC 29365	Human Health and Performance Directorate Contingency Action Plan (CAP) for Space Flight Programs	Current Version
JSC 29508	Software Requirements Specifications for the Nutrition Food Frequency Questionnaire (FFQ) Software	Current Version
JSC 63398	Human Health and Performance Directorate Risk Management Plan	Current Version
JSC 63555	Nutrition Requirements, Standards, and Operating Bands for Exploration Missions	Current Version
JSC 63828	Biosafety Review Board Operations and Requirements Document	Current Version
JSC 63926	HHPD Configuration Management Plan for Flight Products	Current Version
JSC 64146 – All Volumes	Medical Operations Biomedical Flight Control Training and Certification Plan	Current Version
JSC 64367	Exploration Life Support Baseline Values and Assumptions Document	Current Version
JSC 66108	Integrated Medical Model (IMM) Approach to Levels of Evidence Document	Current Version
JSC 66109	Integrated Medical Model (IMM) List of Medical Conditions	Current Version
JSC 66112	Integrated Medical Model (IMM) Database User's Guide	Current Version
JSC 66113	Integrated Medical Model (IMM) Configuration Management Document	Current Version
JSC 66114	Integrated Medical Model (IMM) Operations Plan	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
JSC 66115	Integrated Medical Model (IMM) Verification and Validation Plan	Current Version
JSC 66118	Integrated Medical Model (IMM) Technical Description Document	Current Version
JSC 66132	Crew Health Care System Hardware Integration Standard Operating Procedure	Current Version
JSC 66306	Data Sharing Policy for Release of NASA Protected Health and Research Information	Current Version
JSC 66377	JSC HMTA Transition to Operations Process	Current Version
JSC 66387	Medical Simulation Laboratory Requirements Document	Current Version
JSC 66498	Optical Coherence Tomography Functional Requirements Document	Current Version
JSC 66552	Electrostatic Discharge Control Requirements for the Protection of Electronic Components and Assemblies	Current Version
JSC 66705	Human Systems Risk Management Plan	Current Version
JSC-STD-8080	JSC Design and Procedural Standards	Current Version
JWI 1282.11	JSC Calibration and Control of Measuring and Test Equipment (MTE)	Current Version
JWI 2190.1	JSC Export Compliance	Current Version
JWI 4200.1	JSC Management of Controlled Property	Current Version
JWI 4210.2	JSC Instructions for Control of Program Stock	Current Version
JWI 4300.1	JSC Instructions for Excess and Disposal of Government Property	Current Version
JWI 6050.1	Procedures for Processing Shipments from JSC	Current Version
JWI 8553.1	JSC Environmental Management System Implementation Guide – Aspect/Impact Assessment and Environmental Management Program (EMP) Process	Current Version
JWI 8570.1	Energy Conservation	Current Version
JWI 8730.7	JSC Validation Testing of Raw Materials	Current Version
LS 71175	Integrated Increment Requirements Document Blank Book	Current Version
LS 73004	ISSMP Launch Manifest	Current Version
LS 73005	ISSMP Flight Queue Master List	Current Version
MIL-STD-129	Military Marking for Shipment and Storage	Current Version
MPCV 70024	Orion Multipurpose Crew Vehicle Program (MPCV) Human System Integration Requirements (HSIR)	Current Version
NASA-HDBK-6003	NASA Application of Data Matrix Identification Symbols to Aerospace Parts Using Direct Part Marking Methods/Techniques	Current Version
NASA-HDBK-7009	NASA Handbook for Models and Simulations	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
NASA-SP-2010-3407	NASA Human Integration Design Handbook	Current Version
NASA-STD-2804	Minimum Interoperability Software Suite	Current Version
NASA-STD-2805	Minimum Hardware Configurations	Current Version
NASA-STD-3001 Volume 1	NASA Space Flight Human System Standard Volume 1: Crew Health	Current Version
NASA-STD-3001 Volume 2	NASA Space Flight Human System Standard Volume 2: Human Factors, Habitability, and Environmental Health	Current Version
NASA-STD-6002	NASA Applying Data Matrix Identification Symbols on Aerospace Parts	Current Version
NASA-STD-7009	NASA Standard for Modeling and Simulation	Current Version
NF 1018	NASA Property in the Custody of Contractors	Current Version
NPD 1371.5	Coordination and Authorization of Access by Foreign Nationals and Foreign Representatives to NASA	Current Version
NPD 7100.8	Protection of Human Research Subjects	Current Version
NPD 8730.2	NASA Parts Policy	Current Version
NPR 1382.1	NASA Privacy Procedural Requirements	Current Version
NPR 1441.1	NASA Records Retention Schedules	Current Version
NPR 1600.1	NASA Security Program Procedural Requirements	Current Version
NPR 1800.1	NASA Occupational Health Program Procedures	Current Version
NPR 2800.1	NASA Procedural Requirements for Managing Information Technology	Current Version
NPR 2810.1	Security of Information Technology	Current Version
NPR 4100.1	NASA Materials Inventory Management Manual	Current Version
NPR 4200.1	NASA Equipment Management Procedural Requirements	Current Version
NPR 4200.2	NASA Equipment Management Manual for Property Custodians	Current Version
NPR 4300.1	NASA Personal Property Disposal Procedural Requirements	Current Version
NPR 4310.1	NASA Artifact Identification and Disposition	Current Version
NPR 6000.1	Requirements for Packaging, Handling and Transportation for Aeronautical and Space systems, Equipment and Associated Components	Current Version
NPR 7100.1	NASA Procedural Requirements for the Protection of Human Subjects	Current Version
NPR 7120.5	NASA Space Flight Program and Project Management Requirements	Current Version
NPR 7120.7	NASA Information Technology and Institutional Infrastructure Program and project Management Requirements	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
NPR 7120.8	NASA Research and Technology Program and Project Management Requirements	Current Version
NPR 7123.1	NASA Systems Engineering Processes and Requirements	Current Version
NPR 7150.2	NASA Software Engineering Requirements	Current Version
NPR 8570.1	NASA Energy Management Program	Current Version
NPR 8621.1	NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating and Recordkeeping	Current Version
NPR 8705.2	NASA Human-Rating Requirements for Space Systems	Current Version
NPR 8735.1	NASA Procedures for Exchanging Parts, Materials, Software, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program (GIDEP) and NASA Advisories	Current Version
NPR 8900.1	NASA Health and Medical Requirements for Human Space Exploration	Current Version
NPR 8910.1	Care and Use of Animals Procedural Requirements	Current Version
NPR 9501.2	NASA Contractor Financial Management Reporting	Current Version
SA-WI-001	Human Health and Performance Directorate Master Work Instruction	Current Version
SA-WI-002	Configuration Control Board (CCB) Work Instruction, Human Systems and Engineering Development Division	Current Version
SA-WI-014	Space Life Sciences Directorate Project Management of Flight Hardware Developments	Current Version
SA-WI-025	Human Health and Performance Directorate Export Control Processes	Current Version
SA-WI-026	Clinical Services Implementation Plan for Astronaut Health Care	Current Version
SA-WI-027	Storage and Handling of Dangerous Drugs and Controlled Substances Used for Research Purposes	Current Version
SA-WI-029	Human Health and Performance Emergency Response Work Instruction	Current Version
SA-WI-030	Human Health and Performance Directorate Flight Safety Panel Support Work Instruction	Current Version
SAE AS9100 / ISO 9001-2000	Quality Management System for Aviation, Space, and Defense Organizations	Current Version
SK-WI-001	Biomedical Research and Environmental Sciences (BR&ES) Division Work Instruction	Current Version
http://www.gidep.org	GIDEP Operations Manual (S0300-BT-PRO-010)	Current Version
SSP 30234	Failure Modes and Effects Analysis and Critical Items List Requirements for Space Station	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
SSP 30309	Safety Analysis and Risk Assessment Requirements Document	Current Verion
SSP 30599	Safety Review Process	Current Version
SSP 30695	Acceptance Data Package Requirements Specification	Current Version
SSP 41000	System Specification for the International Space Station	Current Version
SSP 50005	International Space Station Flight Crew Integration Standards	Current Version
SSP 50007	Space Station Inventory Management System Bar Code Label Requirements and Specifications	Current Version
SSP 50021	Safety Requirements Document	Current Version
SSP 50038	Computer Based Control System Safety Requirements	Current Version
SSP 50108	ISS Program Certification of Flight Readiness Process Document	Current Version
SSP 50253	Operations Data File Standards	Current Version
SSP 50260	International Space Station Medical Operations Requirements Document (ISS MORD)	Current Version
SSP 50277	ISS Payloads Integrated Logistics Support Guidelines	Current Version
SSP 50364 Appendix H	HOSC to Johnson Space Center Telescience Support Center Interface Control Document	Current Version
SSP 50431	Space Station Program Requirements for Payloads	Current Version
SSP 50470	Crew Health Care System (CHeCS) Specification	Current Version
SSP 50480	International Space Station Joint Medical Operations Implementation Plan (ISS JMOIP)	Current Version
SSP 50808	International Space Station (ISS) to Commercial Orbital Transportation System (COTS) Interface Requirements Document (IRD)	Current Version
SSP 50834	ISS Vehicle Office Management and Hardware Development Plan	Current Version
SSP 50835	ISS Common Interface Requirements Document	Current Version
SSP 52000	Payloads Data Sets Blank Book	Current Version
SSP 52054	ISS Program Payloads Certification of Flight Readiness Implementation Plan, Generic	Current Version
SSP 57000	Pressurized Payloads Interface Requirements Document	Current Version
SSP 57003	Attached Payload Interface Requirements Document	Current Version
SSP 57008	Unique Pressurized Payload Non-Rack ICD Template	Current Version
SSP 57057	ISS Payloads Integration Template	CurrentVersion
SSP 57059	Standard Payload Interface Agreement	Current Version
http://irb.nasa.gov/	JSC Committee for the Protection of Human Subjects Guidelines	Current Version

DOCUMENT NUMBER	DOCUMENT NAME	LATEST REVISION/ DATE
N/A	Crew Health Care System (CHeCS) Medical Hardware Catalog	Current Version

Human Health and Performance Contract (HHPC)

Data Requirements List (DRL)

&

Data Requirements Documents (DRD)

Attachment J-2

Data Requirements List
&
Data Requirements Descriptions
(Based on JSC-STD-123)

DATA REQUIREMENTS LIST (DRL) AND DATA REQUIREMENTS DESCRIPTIONS (DRDs)

The following pages set out the documentation requirements of this contract, starting with a DRL, which is an index to the DRDs. Each DRD prescribes the required data product content, schedule, type, and other particulars for specific data submission requirements.

Subject to the Clause 52.227-14, Rights in Data - General, this document sets forth the data requirements in each Data Requirements Description (DRD) and shall govern that data required for this contract. The contractor shall furnish data defined by the DRDs listed on the Data Requirements List (DRL) by category of data. Such data shall be prepared, maintained, and delivered to NASA in accordance with the requirements set forth within this document. In cases where data requirements are covered by a Federal Acquisition Regulation (FAR) or NASA FAR Supplement (NFS) regulation or clause, the regulation will take precedence over this document, per FAR 52.215.33. NASA-Owned/Contractor-Held records shall be managed by the Contractor in accordance with Title 36 of the code of Federal Regulations, Chapter XII B, Records Management, and NASA Management Instruction (NMI) 1440.6, NASA Records Management Program. The records shall be organized in accordance with the instructions in NASA Hand Book (NHB) 1442.1, NASA Uniform Files index, as applicable. The contractor shall disposition records and non-records in accordance with NHB 1441.1, NASA Retention Schedules, which has been approved by NASA and the National Archives and Records Administration (NARA). All questions on records management issues shall be directed through the Contracting Officer to the JSC Records Management Officer.

Documents included as applicable documents in the data requirements form a part of this document to the extent specified herein. References to documents other than applicable documents in the data requirements of this document may sometimes be utilized. These do not constitute a contractual obligation on the contractor. They are to be used only as a possible example or to provide related information to assist the contractor in developing a response to that particular data requirement.

DESCRIPTION

This document identifies and defines the requirements and data types for information and data required under this contract.

The DRDs, along with the DRL, define, by an individual Data Requirement, the information and data required for each deliverable document.

The data types are used to identify the approval and control required for each DRD. The Data Requirements List (DRL) is an index of all the DRDs by category and includes additional requirements for each DRD and the data types, as described below.

Documentation submitted pursuant to this clause may incorporate references to other current approved documentation, provided the references are adequate and include such identification elements as title, document number, and approval date (where applicable). However, if the pertinent information is of relatively minor size, the contractor shall incorporate the information itself, in lieu of using a reference. The contractor shall assure that any referenced information is readily available to appropriate users of the submitted document.

DATA TYPES

For the purpose of this clause, the following information/documentation types are applicable:

(1) Type 1 - Written approval -- Data and changes thereto requiring written approval by the NASA office of primary responsibility (OPR) before formal release or implementation
(2) Type 2 - Mandatory submittal -- Data provided to NASA for coordination, information, review, and/or management control
(3) Type 3 - Submitted upon request -- Data prepared and retained under a specific contract to be made available to NASA upon request

Type 1 submissions shall be marked “TYPE 1 PRELIMINARY pending NASA approval or Type I APPROVED BY NASA, as appropriate." Additional special designations and deviations may be required on specific submissions in accordance with configuration management requirements.

Type 2 submissions shall be marked “TYPE 2 PRELIMINARY - RELEASE TARGET DATE, xx/xx/xx" or "TYPE 2 FINAL - NASA COMMENTS INCLUDED" or “TYPE 2 FINAL DOCUMENT," where NASA comments were not received.

NOTE: Documents submitted under this clause, even though directly (Type 1) or implicitly (Type 2) approved by NASA, shall not take precedence over the specifications as set out in Section C, Statement of Work.

The contractor shall normally deliver a complete revised Type 1 or Type 2 data requirement with NASA comments incorporated within 45 days of receipt of comments.

Type 3 submissions shall be marked "TYPE 3 DOCUMENT - FOR INFORMATION, SURVEILLANCE, REVIEW OR MANAGEMENT CONTROL".

NUMBER OF COPIES AND DISTRIBUTION REQUIREMENTS

The contractor shall provide one copy of each DRD to the standard distribution list shown in Block 8 of the DRLs. Additional distribution shall be made as directed, in writing, by the Contracting Officer. The number of copies required will not exceed the limits set forth in Clause 1852.208-81, Restrictions on Printing and Duplicating, without prior Contracting Officer approval. Electronic Data Transmittal Forms will be used to confirm delivery of electronically resident DRD deliverables.

ELECTRONIC FORMAT

All the data requirements shall be delivered in the format as depicted in each DRD and compatible with JSC software loads. All documentation shall be maintained within the Engineering Directorate's Design Data Management System (DDMS).

DRDs shall be maintained electronically.

FURTHER EXPLANATION OF DRL

Contract Start is defined as October 1, 2015.

Block 3 – Frequency of submittal:

Code	Description	Code	Description	Code	Description
AD	As Directed	DA	Daily	RD	As Released
AN	Annually	DD	Deferred Delivery	RT	One Time and Revisions
AR	As Required	MO	Monthly	SA	Semi Annually
BE	Biannually	OT	One Time	TY	Three Per Year
BM	Bimonthly	PV	Per Vehicle	UR	Upon Request
BW	Biweekly	QU	Quarterly	WK	Weekly

Block 4 – As of Date- If reports are of a recurring nature, an as of date will be included in this block.

Block 6 – Copies –

Code	Description
DD	Electronic (DDMS)
EM	E-mail
ES	E-mail with Signature
CD	Compact Disk
HS	Hard Copy with signature
HC	Hard Copy

DRD GROUPS:

The DRDs are grouped into categories for clarity of purpose and ease of use. The groups are defined as follows:

- MGMT = Management – these documents address contract management processes and employee compensation
- IT = Information Technology – these documents address IT requirements.
- BP = Business Processes – these documents address non-technical business processes.
- SMA = Safety and Mission Assurance – these documents include safety assessments, problem reporting, parts assessments and requirements. They also include parts, safety, quality, reliability, and configuration management plans.
- RV = Planning, requirements, and verification documentation – these are project planning documents, systems requirements, specifications, and verification.
- SW = Software Specific – these documents are software requirements, design, development, and testing documents.
- TD = Technical Products and Data Packages – these documents capture the results of design reviews, testing, and analysis.
- OH = Occupational Health – these documents address the occupational health requirements

Table 1 - DRL Reference

NUMBER	TITLE
Contract Management	
HHPC-MGMT-01	Contract Management Plan
HHPC-MGMT-02	WBS and Dictionary
HHPC-MGMT-03	Contract Management Report
HHPC-MGMT-04	Staffing and Critical Skills Plan
HHPC-MGMT-05	Contract Phase- In Plan
HHPC-MGMT-06	RESERVED
HHPC-MGMT-07	Total Compensation Plan
HHPC-MGMT-08	External Customer Plan
HHPC-MGMT-09	Technical Innovation Proposed Contract Language
HHPC-MGMT-10	Organizational Conflict of Interest Mitigation Plan
HHPC-MGMT-11	Small Business Subcontracting Plan and Reports
HHPC-MGMT-12	Contract Closeout Plan
HHPC-MGMT-13	Environmental & Energy Consuming Product Compliance Reports
Information Technology	
HHPC-IT-01	Information Technology (IT) Capital Planning and Investment Control (CPIC) Plan
HHPC-IT-02	Information Technology (IT) Security Plan and Reports
Business Processes	
HHPC-BP-01	NASA Contractor Financial Management Reporting (NF 533)
HHPC-BP-02	Data Management Plan
HHPC-BP-03	Configuration Management Plan
HHPC-BP-04	Export Control Plan
HHPC-BP-05	Export Control Audit Results
HHPC-BP-06	Patent Rights Retention
HHPC-BP-07	Reports Required for Logistics
HHPC-BP-08	Contractor-Held Property Reporting
HHPC-BP-09	Government Property Management Plan
HHPC-BP-10	Re-Procurement Data Package
Safety and Mission Assurance	
HHPC-SMA-01	Quality Plan
HHPC-SMA-02	Electrical, Electronic, and Electromechanical (EEE) Parts Control Plan
HHPC-SMA-03	Safety and Health Plan
HHPC-SMA-04	Problem Reporting and Corrective Action for the GFE and Flight
HHPC-SMA-05	Government-Industry Exchange Program (GIDEP) and NASA Advisory Problem Data
Planning, Requirements, and Verification Documentation	
HHPC-RV-01	Project Schedule
HHPC-RV-02	Regular Status Report/ Summary Review
HHPC-RV-03	Project Technical Requirements Specification
HHPC-RV-04	Project Requirements and Verification Document
HHPC-RV-05	Certification and Acceptance Requirements Document

NUMBER	TITLE
HHPC-RV-06	Interface Control Document
HHPC-RV-07	End Item Specification
HHPC-RV-08	Engineering Drawings and Model Files
HHPC-RV-09	Flight Products Authorization to Proceed Report
HHPC-RV-10	Flight Products Verification and Validation Document
HHPC-RV-11	Flight Products Qualification Plan
HHPC-RV-12	Flight Products Qualification Test Procedure (QTP)
HHPC-RV-13	Flight Products Acceptance Test Procedure (ATP)
HHPC-RV-14	Flight Products Qualification Report
Software Requirements and Verification Documentation	
HHPC-SW-01	Software Requirements Specification (SRS)
HHPC-SW-02	Software Development Plan (SDP)
HHPC-SW-03	Software Design Document (SDD)
HHPC-SW-04	Software Code
HHPC-SW-05	Software Assurance Plan
HHPC-SW-06	Software Test Description
HHPC-SW-07	Software Test Plan
HHPC-SW-08	Version Description Document (Software and/or Firmware)
Technical Products and Data Packages	
HHPC-TD-01	Flight Products System Requirements Review (SRR) Data Package
HHPC-TD-02	Preliminary Design Review (PDR) Data Package
HHPC-TD-03	Flight Products Critical Design Review (CDR) Data Package
HHPC-TD-04	Acceptance Data Package (ADP)
HHPC-TD-05	Limited Life Items List
HHPC-TD-06	Certification Data Package
HHPC-TD-07	Flight Products Users Guide
HHPC-TD-08	Engineering Analysis
HHPC-TD-09	Flight Products Verification and Validation Report
HHPC-TD-10	Space Station Reliability and Maintainability Predictions Report
HHPC-TD-11	Test Report
HHPC-TD-12	Delivery/ Acceptance Report
HHPC-TD-13	Government Certification Approval Request (GCAR)
HHPC-TD-14	Flight Products Workmanship Specification List
HHPC-TD-15	Electrical, Electronic, and Electromechanical (EEE) Parts List and
HHPC-TD-16	Space Station Failure Modes and Effects Analysis (FMEA) and Critical
HHPC-TD-17	Space Station Payload Safety Data Package
HHPC-TD-18	Space Station Hazard Reports (HRs)
HHPC-TD-19	Risk Assessment Executive Summary Report (RAESR)
HHPC-TD-20	Non Conformance Record
HHPC-TD-21	Flight Products Failure Analysis Report
HHPC-TD-22	Engineering Design Change Proposal
Occupational Health	
HHPC-OH-01	Occ. Health Monthly, Quarterly, & Annual Work Achievement Reports
HHPC-OH-02	Occupational Health Customer Satisfaction Surveys

NUMBER	TITLE
HHPC-OH-03	Occupational Health Standard Operating Procedures
HHPC-OH-04	Workplace Health Inspection Reports
HHPC-OH-05	Annual Sampling Strategy, Exposure, Monitoring, & Complaint Log
HHPC-OH-06	Building & Facility Hazardous Material and Components Information
HHPC-OH-07	JSC Chemical Inventory & MSDS Database
HHPC-OH-08	Occupational Health Database Management

a. Title of Contract, Project, SOW, etc.	b. Contract/RFP No.	c. DRL Date/Mod Date
HUMAN HEALTH AND PERFORMANCE CONTRACT (HHPC)	NNJ15HK11/	**09/07/2014**

Contract Management

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-01	**Contract Management Plan**	**RT**		**Due with Proposal**		**HC, DD, EM**	**1,2**

7. Data Type: X **(1) Written approval** ☐ **(2) Mandatory Submittal** ☐ **(3) Submitted upon request**

8. Distribution ***(Continue on a blank sheet if needed)***

1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO.
3) Email submitted to COR.

9. Remarks

Block 3: Revisions shall be submitted within 45 days after the addition/deletion of major content to the HHPC. Annual review required.
Block 5: Due with proposal (HC). Update at contract start + 30 days.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-02	**WBS and Dictionary**	**RT**	**See Block 9.**	**Due with Proposal**		**HC, DD, EM**	**1,2**

7. Data Type: X **(1) Written approval** ☐ **(2) Mandatory Submittal** ☐ **(3) Submitted upon request**

8. Distribution ***(Continue on a blank sheet if needed)***

1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO.
3) Email submitted to COR.

9. Remarks

Block 4: Revisions shall be submitted within 45 days after the addition/ deletion of major content to the HHPC.
Block 5: Due with proposal (HC). Annual review required.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-03	**Contract Management Report**	**MO**	**30/15**	**45 days after contract start date**		**DD**	**1**

7. Data Type: ☐ **(1) Written approval** X **(2) Mandatory Submittal** ☐ **(3) Submitted upon request**

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.

9. Remarks

Block 4: Corrections to a monthly Contract Management Report shall be identified and changes made (if applicable) in the subsequent monthly Contract Management Report.
Block 5: Due at contract start + 45 days.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-04	**Staffing and Critical Skills Plan**	**RT**		**Due with proposal**		**HC, DD, EM**	**1,2**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed. 2) Email submitted to CO. 3) Email submitted to COR.	Block 5: Initial due with proposal (HC). Update 30 days after contract start date. Annual review required.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-05	**Contract Phase-In Plan**	**OT**		**Due with proposal**		**HC, DD, EM**	**1,2**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
			X			

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed. 2) Email submitted to CO. 3) Email submitted to COR.	Block 5: Initial due with proposal (HC). Revisions shall be incorporated electronically by change page or complete reissue.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-06	**RESERVED**						

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-07	Total Compensation Plan	RT		Due with proposal		HC, DD, EM	1,3

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO.
3) Email submitted to COR.
4) Email submitted to JSC-DL-BB-Labor-Relations

9. Remarks

Block 5: Initial due with proposal (HC).
Final due 3 years after contract award, as revised, or as required by the Contracting Officer.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-08	External Customer Plan	RT		See Block 9		DD, EM	1,2,1

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO.
3) Email submitted to COR.
4) Hard copy submitted to JSC Legal Office.

9. Remarks

Block 5: Initial at contract start + 30 days.
Final at contract start + 60 days.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-09	Technical Innovation Proposed Contract Language (TIPCL)			Due with proposal		HC, DD, EM	1,2

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Revisions shall be delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO.
3) Email submitted to COR.

9. Remarks

Block 5: Initial due with proposal (HC).

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-10	Organizational Conflict of Interest Mitigation Plan	RT		Due with proposal		DD, EM, HC	1,2,1

7. Data Type:					
	X	(1) Written approval	X	(2) Mandatory Submittal	(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivery to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.
3) Hard copy submitted to JSC Legal Office.

9. Remarks

Block 5: Initial due with proposal (EM). Revisions shall be submitted within 30 days after identification of new OCI issues. Annual review required.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-11	Small Business Subcontracting Plan and Reports	RT		Due with proposal		HC, DD, EM	1,2

7. Data Type:					
	X	(1) Written approval	X	(2) Mandatory Submittal	(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivery to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.

9. Remarks

Block 5: Initial due with proposal (HC). Update as requested by COR. Annual review required.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-12	Contract Closeout Plan	OT		See Block 9		DD, EM	1,2

7. Data Type:					
	X	(1) Written approval	X	(2) Mandatory Submittal	(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivery to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.

9. Remarks

Block 5: One year prior to end date of contract, unless otherwise directed by the Contracting Officer.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-MGMT-13	Environmental & Energy Consuming Product Compliance Reports	AN		See Block 9		DD, EM, HC	1,2

7. Data Type:					
	X	(1) Written approval	X	(2) Mandatory Submittal	(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivery to the Design Data Management System (DDMS).
2) Email submitted to CO and COR.
3) Hard copy submitted to the JSC Environmental Mgmt Office, code JE111.
4) Hard copy submitted to the JSC Energy Conservation Manager, code JP.

9. Remarks

Block 5: December 1st except the last year of the contract when it will be due 30 days following contract completion.

	Information Technology						
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-IT-01	**Information Technology (IT) and Capital Planning and Investment Control (CPIC) Document**	**AN**		**See Block 9**		**DD**	**1**
7. Data Type:	X **(1) Written approval**		**(2) Mandatory Submittal**			**(3) Submitted upon request**	
	8. Distribution ***(Continue on a blank sheet if needed)***			**9. Remarks**			
	1) Delivered to NASA ET2 database. Notification of delivery submitted to the Design Data Management System (DDMS).			Block 5: Initial submit per phase-in requirements. Annual CPIC data call during PPBE per OCIO schedule. Execution year spend plan annually prior to Fiscal Year start.			
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-IT-02	**Information Technology (IT) Security Plan and Reports**	**OT**		**Due with proposal**		**DD**	**1**
7. Data Type:	X **(1) Written approval**		**(2) Mandatory Submittal**			**(3) Submitted upon request**	
	8. Distribution ***(Continue on a blank sheet if needed)***			**9. Remarks**			
	1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.			Block 5: Initial due with proposal. Final version due at Contract Start + 60 days.			
	Business Processes						
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-BP-01	**NASA Contractor Financial Management Reporting (NF 533)**	**MO**	**See Remarks**	**Contract start+30 days**		**DD, EM, HC**	**1,3,1**
7. Data Type:	**(1) Written approval**	X	**(2) Mandatory Submittal**			**(3) Submitted upon request**	
	8. Distribution ***(Continue on a blank sheet if needed)***			**9. Remarks**			
	1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed. 2) Email submitted to CO and COR. 3) Electronic copy submitted to LF6/ Cost Accounting. 4) Year-end Hard Copy to LA/ Contract Business Manager.			Block 4: Delivered by the 10th day of each month. Block 5: Due at contract start + 30 days.			

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-02	Data Management Plan	RT		See Block 9		DD	1

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.	Block 5: Initial due at contract start + 30 days. Annual review with update as required.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-03	Configuration Management Plan	RT		See Block 9		DD	1

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.	Block 3: Updates after the addition / deletion of major content to the HHPC. Annual review required with update as required. Block 5: Contract start + 45 days.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-04	Export Control Plan	OT		Due with proposal		DD	1

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.	Block 5: Initial due with proposal. Final to be submitted at contract start + 60 days.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-05	Export Control Audit Results	AN		See Block 9		DD	1

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
			X			

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.	Block 5: Initial at contract start + 180 days, with annual update or as requested by the Contracting Officer.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-06	**Patent Rights Retention**	**AR**		**See Block 9**		**DD, EM,**	**1,2**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.

9. Remarks

Block 5: Contract start + 12 months.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-07	**Reports Required for Logistics**	**See block 9**		**See Block 9**		**HC, EM**	**1,3**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) NASA Form 1324, Semiannual Report of Personnel Property Management Operations.
2) NASA Form 1489, Semiannual Analysis of Inventory Report.
3) NASA Form 1619, Physical Inventory of Materials Annual Report.
4) Quarterly Report of Contractor-Acquired Material (CAM) and Low Dollar Equipment.
5) Annual Report of Exchange/Sale.
6) All reports shall be provided to the cognizant Government Property Administrator.
7) Email submitted to CO and COR.

9. Remarks

1. Semiannual Personnel Property Management Operations Report: 03/25 and 09/25.
2. Semiannual Analysis of Inventory Report: 03/25 and 09/25.
3. Physical Inventory of Materials Annual Report: 09/25.
4. Quarterly Report of Contractor-Acquired Material and Low Dollar Equipment: 15 working days after the end of the Quarter/Fiscal Year.
5. Annual Report of Exchange/Sale: 15 days after the end of the Government Fiscal Year.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-08	**Contractor-Held Property Reporting**	**See block 9**		**See Block 9**		**EM**	**4**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Monthly reports electronically submitted using the Contractor-Held Asset Tracking System (CHATS) (http://nasachats.gsfc.nasa.gov/)
2) NASA Form (NF) 1018 reports shall be submitted using the NF 1018 Electronic Submission System (NESS) (http://ness.gsfc.nasa.gov/)
3) Email submitted to CO.
4) Email submitted to the COR.

9. Remarks

1. Monthly Property Financial Reporting submission is the 21st day after the close of the previous month, except for the month of September which is due the 15th day, beginning at the first month after contract start.
2. The due date for the Annual Property Reporting via NASA Form (NF) 1018 is October 15 reflecting data from October 1 the previous year to September 30 the current year.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-09	**Government Property Management Plan**	**RT**		**See Block 9**		**DD, EM, HC**	**1,2**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.

9. Remarks

Block 5: Initial due with proposal (HC). Final due at contract start + 30 days. Changes to the PMP shall be incorporated by change pages or complete reissue after coordination with the Government Property Administrator. Revisions shall be submitted within 45 days after the addition /deletion of major content to the HHPC. Annual review required with update as required.
See Clause G.10.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-BP-10	**Re-Procurement Data Package**	**OT**		**See Block 9**		**HC, DD, EM**	**1,3**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal (See 9)		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.
3) Email submitted to Pricing Office Team Lead.

9. Remarks

1. Block 5: Initial: 1 year prior to contract end or at the Contracting Officer's direction
2. Final: End of period of performance: submission of current version of all models, tools and supporting documentation which have been updated since first submission.

Safety and Mission Assurance

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SMA-01	**Quality Plan**	**RT**		**See Block 9**		**DD, EM, HC**	**1,2,1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO and COR.
3) Hard copy submitted to NT2/Chief, Quality Assurance Branch.

9. Remarks

Block 5: Initial due with proposal per DRD instructions (HC). Final, complete submittal due 15 days before contract start. Update as requested by COR..

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SMA-02	**Electrical, Electronic, And Electromechanical (EEE) Parts Plan**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.	Block 5: Contract start + 30 days. Update as requested by COR.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SMA-03	**Safety and Health Plan**	**RT**		**See Block 9**		**DD, EM**	**1,4**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed. 2) Email submitted to CO and COR. 3) Email submitted to NS/Safety and Test Operations Division. 4) Email submitted to JSC Occupational Health Office. 5) Email submitted to JSC Emergency Preparedness Office.	Block 5: Partial submission due with proposal. Remainder of DRD requirements shall be completed in its entirety no later than 15 days before contract start. NASA approval is required no later than contract start.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SMA-04	**Problem Reporting and Corrective Action for the Government Furnished Equipment and Flight Products**	**RD**		**See DRD**		**EM**	**2**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	1) E-mail to gfepraca@mail.nasa.gov or on the JSC Global email to JSC-GFE-PRACA.	JSC 28035 provides details regarding timely reporting and dispositioning of problems.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SMA-05	**Government-Industry Data Exchange Program (GIDEP) and NASA Advisory Problem Data**	**AR**		**See Block 9**		**DD, , EM, HC**	**1,3,1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Implementation Procedures: 1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed. 2) Email submitted to CO (Implementation Procedures only). 3) Email submitted to the COR. 4) Hard copy submitted to NT4/JSC GIDEP NASA Coordinator. NASA Advisories: 1. E-mail JF 1159 to the JSC NASA-Advisory/GIDEP Coordinator at jsc-jscadvco@nasa.gov. Status and Disposition Data: 1. Electronically delivered to the JSC NASA Advisory/GIDEP. Documents Status and Tracking System.	Block 5: 1. Contractor and sub tier Implementation procedures: Contract start + 60 days. 2. Release of GIDEP documents (in compliance with GIDEP Operations Manual and Policy). 3. Release of NASA Advisories (in accordance with NASA policy). d. Problem data assessments (30 days after receipt of the problem data). 4. Milestone/mission support (as required to support the milestone or mission events). 5. Cost data (as required for special problems involving criminal investigations).

	Planning, Requirements, and Verification Documentation						

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-01	**Project Schedule**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 9: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-02	**Regular Status Report/ Summary Review**	**AD in DO or TO**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal	X	(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-03	**Project Technical Requirements Specification**	**AD in DO or TO**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-04	**Project Requirements and Verification Documentation**	**AD in DO or TO**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-05	**Certification and Acceptance Requirements Document**	**AD in DO or TO**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Requirements and verification plans at PDR Submit with evidence of verifications at SAR

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-06	**Interface Control Document (ICD)**	**AD in DO or TO**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.

9. Remarks

Block 3: Revisions require customer approval.
Block 5: At Preliminary Design Review or as directed in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-07	**End Item Specification**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.

9. Remarks

Block 3: Revisions require customer approval.
Block 5: At System Requirements Review or as directed in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-08	**Engineering Drawings and Model Files**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Flight engineering and CAD models: Reference JPR 8500.4 for submittal and approval process.
2) Facility engineering and CAD models: As specified in TO or DO.

9. Remarks

Block 5: All CAD models shall be delivered in native format to DDMS or a NASA data system specified in the TO or DO.
Block 7: Contractor Cage Code= Mandatory Submittal
NASA Cage Code= Written Approval

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-09	**Flight Products Authorization to Proceed Report**	**AR**		**See Block 9**		**DD, EM**	**1,2**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution ***(Continue on a blank sheet if needed)***

1) Delivered to the Design Data Management System (DDMS). This record will be automatically distributed.
2) Email submitted to CO.
3) Email submitted to COR.

9. Remarks

Block 5: Submitted within 30 days of Preliminary Design Review or Critical Design Review or as defined in TO or DO.
Block 7: Technical representatives for the contractor and NASA must approve.

1 Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-10	**Flight Products Verification and Validation Document**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: At Preliminary Design Review or as directed in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-11	**Flight Products Qualification Plan**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Initial Flight Products Qualification Plan due at contract start + 60 days. Documents approach to qualifying flight products; specifically the processes of testing, analysis, demonstration, and inspection methods used to certify flight products. Revision(s) due at Critical Design Review or as directed in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-12	**Flight Products Qualification Test Procedure**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: One month prior to initiation of formal Qualification testing.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-13	**Flight Products Acceptance Test Procedure**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: One month prior to initiation of formal Acceptance testing.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-RV-14	**Flight Products Qualification Report**			**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: At Systems Acceptance Review or as directed in TO or DO.

Software Requirements and Verification Documentation

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SW-01	**Software Requirements Specification**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Establishes engineering criteria to be used for the development of the product. Used as the engineering and quality metric for product evaluation. Block 4: Revisions require customer approval. Block 5: At Preliminary Design Review or as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SW-02	**Software Development Plan (SDP)**	**RT**		**See Block 9**		**E**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Initial Software Development Plan due at contract start + 60 days. Documents the planned approach to software acquisition, development, assurance, certification, verification, delivery, and operational utilization. Revision(s) due at the System Requirements Review or as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SW-03	**Software Design Document (SDD)**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: At the Preliminary Design Review or as directed in the **TDO.**

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-SW-04	**Software Code**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC- SW-05	**Software Assurance Plan**	**RT**		**See Block 9**		**DD, EM**	**1,1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
1. Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed. 2. Hardcopy to be submitted to NT2/Chief, Quality Assurance Branch.	Block 5: Contract start date+30 days.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC- SW-06	**Software Test Description**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC- SW-07	**Software Test Plan**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Per direction in TO or DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC- SW-08	**Version Description Document (Software and/or Firmware)**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Per direction in TO or DO.

	Technical Products and Data Packages	

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-01	**Flight Products System Requirements Review (SRR) Data Package**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: Defined by the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-02	**Flight Products Preliminary Design Review (PDR) Data Package**	**OT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Delivered at PDR per direction in the DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-03	**Critical Design Review (CDR) Data Package**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution ***(Continue on a blank sheet if needed)***

Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.

9. Remarks

Block 3: Revisions require customer approval.
Block 5: Delivered at CDR per direction in the DO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-04	**Acceptance Data Package (ADP)**	**RT**		**See Block 9**		**DD, HC**	**1,1**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution ***(Continue on a blank sheet if needed)***

1) Submitted to the Design Data Management System (DDMS) for all Flight Products. This record will be automatically distributed.
2) Hard copy submitted with end item.

9. Remarks

Block 3: The DD 250 is the form used for the final approval of the ADP and the product delivered.
Block 5: At delivery of end item as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-05	**Limited Life Items List**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
			X			

8. Distribution ***(Continue on a blank sheet if needed)***

Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.

9. Remarks

Block 5: At Systems Acceptance Review as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-06	**Certification Data Package (CDP)**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request
	X					

8. Distribution ***(Continue on a blank sheet if needed)***

Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.

9. Remarks

Block 3: Revisions require customer approval.
Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-07	Flight Products Users Guide	AD		See Block 9		DD	1

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-08	Engineering Analysis	RT		See Block 9		DD	1

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: At System Acceptance Review or as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-09	Flight Products Verification and Validation Report	OT		See Block 9		DD	1

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: At System Acceptance Review or as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-10	Space Station Reliability and Maintainability Predictions Report	RT		See Block 9		DD	1

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-11	**Test Report**	**OT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-12	**Delivery/ Acceptance Report**	**AD**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: As directed in the TDO. The OPR for this DRD is the Technical Management Representative (TMR) or Alternate TMR.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-13	**Government Certification Approval Request (GCAR)**	**OT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: At SAR or as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-14	**Flight Products Workmanship Specification List**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: Delivered as directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-15	Electrical, Electronic, and Electromechanical (EEE) Parts List and Analysis Report	RT		See Block 9		DD	1

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-16	Space Station Failure Modes and Effects Analysis (FMEA) and Critical Items List (CIL)	RT		See Block 9		DD	1

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-17	Space Station Payload Safety Data Package	RT		See Block 9		DD	1

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: As directed in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-18	Space Station Hazard Reports (HRs)	RT		See Block 9		DD	1

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Phase I, II, and III versions submitted concurrent with milestone reviews or as specified in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-19	**Risk Assessment Executive Summary Report (RAESR)**	**RT**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 3: Revisions require customer approval. Block 5: Phase I, II, and III versions submitted concurrent with milestone reviews or as specified in the TDO.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-20	**Non Conformance Record (NCR)**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: Customer to be made aware of NCRs affecting class I,class II, and Ground Support Equipment when they occur. Block 7: Customer or delegated representative approval of “waiver,” “use as is”, “repair” dispositions is required per requirements defined in Quality Plan and Configuration Management Plan.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-21	**Flight Products Failure Analysis Report**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Delivered to the Design Data Management System (DDMS) in the respective TDO folder. This record will be automatically distributed.	Block 5: Depends on the nature of the failure and is established by agreement between the contractor and the COR or the COR’s technical designee.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-TD-22	**Engineering Design Change Proposal**	**AR**		**See Block 9**		**DD**	**1**

7. Data Type:	X	(1) Written approval		(2) Mandatory Submittal		(3) Submitted upon request

8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
Submitted by secure communications to the Design Data Management System (DDMS) for all Flight Products or to the leading two NASA managers of the related facility defined in the DO or TO for Facility Products. Notice of submittal and distribution will be performed automatically in the DDMS.	Block 5: As needed, contractor initiated.

	Occupational Health						
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-OH-1	**Occupational Health Monthly, Quarterly, and Annual Work Achievement Reports**	**WK, MO, QU, SA, AN**	**See block 9**	**See Block 9**	**1**	**DD**	
7. Data Type:	**(1) Written approval**	**X**	**(2) Mandatory Submittal**		**(3) Submitted upon request**		
	8. Distribution ***(Continue on a blank sheet if needed)***		**9. Remarks**				
	Delivered to the NASA Technical Monitor.		Block 5: First weekly activity reports due within first week after contract start and every week thereafter. First monthly reports due within contract start + 45 days. Regular monthly, semi-annual, quarterly and annual reports are due within 15 days after period ends.				
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-OH-2	**Occupational Health Customer Satisfaction Surveys**	**MO**	**15th of the month**	**See Block 9**	**1**	**DD**	
7. Data Type:	**(1) Written approval**	**X**	**(2) Mandatory Submittal**		**(3) Submitted upon request**		
	8. Distribution ***(Continue on a blank sheet if needed)***		**9. Remarks**				
	Delivered to the NASA Technical Monitor.		Block 5: Contract start + 40 days for initial submission. Subsequent monthly reports are due within 10 days after the beginning of the next month.				
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-OH-03	**Occupational Health Standard Operating Procedures**	**See block 9**		**See Block 9**	**1**	**DD**	
7. Data Type:	**X** **(1) Written approval**		**(2) Mandatory Submittal**		**(3) Submitted upon request**		
	8. Distribution ***(Continue on a blank sheet if needed)***		**9. Remarks**				
	Delivered to the NASA Technical Monitor.		Block 3: Existing procedures must be reviewed and updated for changes annually. Block 5: First submission to the government (for existing procedures) is due within one year after last submission to the government. New procedures shall be provided to the government on an as needed basis as they are developed.				
1. Line Item	**2. DRD Title**	**3. Frequency**	**4. As-of-Date**	**5. 1st subm. date**	**6. Copies**	**6a. Type**	**6b. Number**
HHPC-OH-04	**Workplace Health Inspection Reports**	**See block 9**	**See block 9**	**See Block 9**	**2**	**DD**	
7. Data Type:	**(1) Written approval**	**X**	**(2) Mandatory Submittal**		**(3) Submitted upon request**		
	8. Distribution ***(Continue on a blank sheet if needed)***		**9. Remarks**				
	1 copy delivered to the Facility Manager and 1 copy to the NASA Technical Monitor.		Blocks 3 & 4: All buildings are to be inspected once within a government fiscal year. After building inspections, government must be provided with a report within 1 month following building inspection. Annual report due within the first quarter of the Government Fiscal Year. Block 5: First annual report due within Contract Start + 90 days.				

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-OH-5	Annual Sampling Strategy, Exposure Monitoring, and Complaint Log	See Block 9	N/A	See Block 9	1	DD	

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the NASA Technical Monitor.	Block 3: Database shall be kept current and periodically reviewed; NASA Technical Monitor shall have access to the Database. Block 9: New data should be entered into database by Contract Start + 15 days. Thereafter, receipt of any new data shall be entered within 15 days of receipt.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-OH-6	Building & Facility Hazardous Material and Components Information	See Block 9	N/A	See Block 9	1	DD	

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the NASA Technical Monitor.	Block 3: NASA Technical Monitor shall have access to the electronic media. Block 9: New data should be entered into database by Contract Start + 15 days. Thereafter, receipt of any new data shall be entered within 15 days of receipt.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-OH-07	JSC Chemical Inventory and MSDS Database	See block 9	N/A	See Block 9	1	DD	

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the NASA Technical Monitor.	Block 3: NASA Technical Monitor shall have access to the electronic media. Block 9: (a) New data should be entered into databases by Contract Start + 15 days. Thereafter, receipt of any new data shall be entered within 15 days of receipt. (b) The Texas Department of State Health Services Texas Tier Two report and the EPA TRI Form R report must be submitted to JSC EO office by January 14 of each calendar year.

1. Line Item	2. DRD Title	3. Frequency	4. As-of-Date	5. 1st subm. date	6. Copies	6a. Type	6b. Number
HHPC-OH-08	Occupational Health Database Management	See block 9	N/A	See Block 9	1	DD	

7. Data Type:		(1) Written approval	X	(2) Mandatory Submittal		(3) Submitted upon request

	8. Distribution *(Continue on a blank sheet if needed)*	9. Remarks
	Delivered to the NASA Technical Monitor.	Block 3: NASA Technical Monitor shall have access to the electronic media. Block 9: New data should be entered into database by Contract Start + 15 days. Thereafter, receipt of any new data shall be entered within 15 days of receipt.

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JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Contract Management Plan	09/07/2014	MGMT-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To describe the contractor's management organization, approach, and systems.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*

8. Preparation Information *(Include complete instructions for document preparation)*

1. **APPLICABLE DOCUMENTS:** NONE

SCOPE:

The contract management plan shall describe the contractor's organizational structure, contract management approach, and management systems that will be used to ensure technical, schedule, and cost performance. The plan shall be comprehensive in nature and integrate all management systems of the prime, subcontractors, and major vendors.

2. **CONTENT:**

The Contract Management Plan shall include, but is not be limited to:

1. A description of the overall proposed management approach, strategies, policies, processes for work planning, definition and authorization, scheduling, budgeting, data accumulation, safety and mission assurance, subcontractor management, material control, baseline control and cost management. This shall include a description of the organizational structure and elements, including a chart depicting the organization and the overall rationale for this approach.

2. A description of the policies, procedures, practices, and techniques for fulfilling all contract requirements including approach for managing, processing and integrating performance of the Tasks/Delivery Orders (TDO). Include a discussion of the timeline and process/procedure associated with providing Task Order (TO) estimates to NASA once a TO has been received from NASA. Identify any specific risks relative to performance of work under the Statement of Work (SOW) and any plans to mitigate those risks.

3. A description of the management relationships between the contractor's key personnel and associated NASA personnel, including communication channels, lines of authority (including the line of succession if Program Manager is unavailable), reporting relationships, and responsibilities of all organizational elements including corporate reachback.

4. A description of the reporting responsibilities of the Program Manager to corporate management and the relationship between the Program Manager and the prime's corporate management as well as the management of any subcontractors, team members, or joint venture partners. Describe the overall authority of the Program Manager to make decisions independent of corporate management.

5. A description of how the contractor's technical personnel (individuals and line managers) will interact

with NASA line management.

6. A description of how the contractor will interface with Government in the management and communication of SOW tasks and priorities as well as ensuring the Government will receive the services ordered by providing the method, level and frequency of internal surveillance. Describe how the management policies, procedures, and techniques are monitored to ensure their effectiveness and facilitate continuous improvement. Describe the methods of identifying deficiencies and plans for correcting deficiencies. Describe the process for Management review/status reviews to NASA management and the communication to and concurrence from the Government for changing priorities and workforce adjustments.

7. A description of the staffing locations plans, including lease arrangements, for the contractor's offsite facilities including a discussion of the on-site and off-site approach.

8. A description of the approach for incentivizing creativity, seeking alternate vendor sources, and infusing technology and innovations from other industries worldwide. A description of the management approach for developing new technologies, innovations, and process improvements that when implemented, shall result in improved quality of products or services while maintaining or reducing costs to the Government.

9. A description of the approach to investigating best practices from contracts or facilities similar to HHPC and JSC, and evaluating potential improvements to the operation of the Human Health and Performance Directorate.

10. A description of the approach to meeting the intent of the requirements stated in Sections 13 and 14 of the DD254 form (Department of Defense Contract Security Classification Specification), included as Attachment J-14 in the RFP.

11. A description of the plan for Physical and Functional Transition and maintenance of the offsite facilities with Directorate Level Organization (DLO) designated "SA" in the "Contractor-Provided, Offsite Laboratories and Facilities" Section of J-28, HHPD Research and Development, Laboratories, Technical Training, and Testing Facilities.

3. FORMAT:

The contract management plan shall be delivered in native format and be compatible with JSC standard software loads.

4. MAINTENANCE:

Revision required with major scope change.

5. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Work Breakdown Structure and Dictionary	09/07/2014	MGMT-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*	
To organize the tasks to be accomplished in this contract in a product-oriented structure. The work breakdown structure (WBS) and dictionary shall provide the framework for structuring the program implementation plans, establishing and tracking budgets, preparing schedules, developing work force and material estimates, preparing work authorization documents, and reporting contract performance.	☐ ☒ ☐	Technical Administrative SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The WBS shall encompass all the products and services required to achieve all the requirements of this contract. The WBS shall subdivide the work to be accomplished into elements that serve as the basis for detailed planning and control, and in addition, permit collection of cost and schedule data for each element.

B. CONTENT:

The WBS shall depict a family tree composed of all the work required by the contract. The dictionary shall contain a concise description of contract tasks, to be performed and products to be delivered, subdivided by WBS elements. A WBS element may represent an identifiable product, a set of data, a service, a task, or a budget function. Lower levels of detail, which the contractor uses for its own management purposes to validate information reported to NASA, shall be compatible with NASA requirements and be accessible to NASA. The relationship between the WBS and the contractor's internal organizations and processes should also be provided.

C. FORMAT:

The WBS tree is to be in the organization chart format and the associated WBS narrative (WBS Dictionary) in text form and arranged as stated in the contents section of this DRD. The WBS tree and dictionary shall be provided in the Contractors' format. The WBS structure and Dictionary shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Contract Management Report	09/07/2014	MGMT-03	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*	
Provide information on the contractor's safety, technical, quality, financial, and deliver-to-schedule progress for use by the contract management team consisting of Engineering, S&MA, and Administrative personnel.	☒ ☒ ☒	Technical Administrative SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-01 Contract Management Plan RV-02 Regular Status Report/Summary Review BP-01 NASA Contractor Financial Management Reporting (NF 533) SMA-03 Safety and Health Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The monthly Contract Management Report shall contain information on the contractor's safety, technical, quality, cost, and deliver-to-schedule performance. This report, along with detailed financial reports, serves as the contractor's formal reports given to NASA for contract surveillance. The Contract Management Report shall be delivered and the associated Summary Review presented at the monthly Contract Management Review (SOW 1.1).

B. CONTENT:

Contract Management Report**:** The contents of the report shall address all active contractual activities and performance. The structure of the report shall be selected by the contractor and agreed upon by the NASA COR. The following shall be addressed in the report:

1. SAFETY SUMMARY

- OSHA reportable events
- Personnel Injuries
- JSC on-site Close Calls and Status involving HHP contractor personnel
- Inspection Reports of on-site facilities dedicated to HHP contractor activities
- Flight Product Safety Related Discrepancy Reports (DR) and summary status of all remaining open DRs

2. COST PERFORMANCE SUMMARY (Performance Based) (For each DO/TO)

- Project Actual-To-Date Cost & Projected Total Cost - Last Period
- Project Actual-To-Date Cost & Projected Total Cost - This Period
- Projected Total Cost Addition Due To Approved Changes
- Graphics Of Initial Cost Projection, Initial Cost Projection - Approved Changes Projection, Full Cost Projection
- Variance not due to approved change and description of cause

3. RESOURCE PERFORMANCE SUMMARY

- Graphic of the initial planned manpower for each WBS item
- Current planned manpower with approved changes
- Actual manpower used to date, and % of WBS task completed

4. TECHNICAL & QUALITY PERFORMANCE SUMMARY STATUS

- Technical /Quality Performance metrics
- Quality issues
- Action to be taken to resolve quality issues
- Continuous improvement initiatives and status
- Other Quality Subjects as needed

5. PRODUCT PRODUCTION AND SCHEDULE SUMMARY STATUS

- Overall Schedule Status
- Completed Products and Schedule – Projected vs. Actual
- Projected Next Month's Products and Schedule
- Change from last month due to approved changes
- Variance not due to approved change and description of cause

6. MANAGEMENT SUMMARY

- Corrective Actions Taken
- Organization
- Configuration Management
- Risk Management (Risk identification and mitigation plans)
- Any changes to OCI status
- Technology, Innovations, and Process Substantial Improvements
- External Customer status

Contract Management Summary Review: The summary review shall contain the highlights of the report and shall be presented at the Monthly Contract Management Review. The COR and the contractor shall agree upon the contents of the review. Minutes during the Summary Review shall be taken and submitted with the next status report.

C. FORMAT:

The Contract Management Report shall be in text form and arranged as stated in the contents section of this DRD. The Contract Management Summary Review shall be a view graph presentation. Both products shall be provided in the Contractor's format. The Contract Management Report and Summary Review shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Staffing and Critical Skills Plan	09/07/2014	MGMT-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Provide Offeror's approach meeting the staff requirements of the SOW.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-01 Contract Management Plan MGMT-07 Total Compensation Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Staffing and Critical Skills Plan describes the process for attracting and retaining qualified personnel to meet the required staffing levels. Upon approval, the Staffing and Critical Skills Plan will become a part of the contract as Attachment J-15.

B. CONTENT:

At a minimum, the offer shall address the following elements:

1. A narrative that describes the basis of the overall staffing approach
2. Staffing of the proposed organizational structure including proposed teaming partners and subcontractor personnel, including the numbers and types of personnel
3. Sources of the proposed staff including its plans to use qualified personnel from within the offeror's company, new hires and retention of incumbent personnel including an estimated percentage of each category proposed. Provide rationale for hiring or replacing incumbent personnel
4. Job descriptions and qualifications by proposed skill levels
5. Retention Plans for maintaining and retaining a qualified workforce for expected high attrition positions throughout the course of the contract
6. Plans for staffing flexibility to accommodate changes in requirements, fluctuation in workload and unexpected attrition including how staffing will be managed for newly authorized IDIQ work
7. Identify all critical skills across the contract and explain how and to what level those critical skills will be maintained. Also include how the loss of a critical skill will be mitigated. NOTE: This content is due with final submission of the Staffing and Critical Skills Plan (at Contract Start + 30 days)

C. FORMAT:

Contractor's format is acceptable. The Staffing and Critical Skills plan shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Contract Phase-In Plan	09/07/2014	MGMT-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To describe the Contractor's implementation approach to transition development, test, and facility maintenance and operations, functions and data management responsibility from the incumbent contractor.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-01 Contract Management Plan MGMT-04 Staffing and Critical Skills

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

NPR 1600.1 NASA Security Program Procedural Requirements

SCOPE:

The HHPC Phase-In Plan provides plans for the transfer of all anticipated on-going development and operation activities during the 62 day contract Phase-In period along with supporting logic and rationale. After approval, the Phase-In Plan will become part of the contract as Attachment J-10.

B. CONTENT:

This Phase-In Plan shall describe the overall plan for transition. At a minimum, the plan shall address:

a. Schedule with key milestones, and personnel responsible for those milestones
b. Metrics used to determine progress for contract transition
c. Approach for ensuring continuity of service, including:
    1. Approach for transitioning and processing of multiple IDIQ task/delivery orders and associated task/delivery order plans required for work to begin on day 1 of the contract start.
    2. Continuous support of purchases and contracts defined in IDIQ task/delivery orders.
    3. Plan for documentation control transfer.
    4. Plan for continuance of facilities maintenance and operations.
    5. Approach for phase-in of critical and high-risk operations and activities and mitigation strategies to minimize impact to JSC.
    6. Approach for establishing contacts and interfaces with Associate Contractor Agreements and the Government.
    7. A description of tasks, if any, requiring a continuation of support from the incumbent contractor.
    8. Uninterrupted support for flight operations with emphasis on crew health and safety

d. Approach and rationale for implementing the plans, procedures, and processes required for performance

of the contract, including property, personnel, facilities, and security.

e. Approach for informing NASA of milestone status, progress, and issues

f. Information Technology Preparation:
    1. Identify all contractor-provided applications that will need to be integrated at JSC.
    2. Identify any application or system connectivity needs to or from JSC.

g. Property control transfer, including schedule and milestones for completing 100% inventory in the following areas:
    1. Store stock assets
    2. Program stock assets
    3. Critical spares
    4. Government Furnished Property
    5. Installation Accountable Government Property

The schedule shall include notification to the organizations 30 days prior to the initial start of an inventory. Individuals who will be performing inventories shall be identified.

h. Security considerations, including Homeland Security Presidential Directive (HSPD)-12 badging requirements

i. Identify risks associated with Phase-in Period and discuss risk mitigation strategy

j. Associate Contract Agreement implementation plan

C. FORMAT:

Contractor's format is acceptable. The Contract Phase-In Plan shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No.
Total Compensation Plan	8/5/14	MGMT-07	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category (*check one*)
The Contracting Officer must evaluate the reasonableness of compensation for service contracts in accordance with NFS 1831.205-670.	☐ Technical ☒ Administrative ☐ SR&QA

6. References (*Optional*)	7. Interrelationships (*e.g., with other DRDs*) (*Optional*)
FAR 52.222-41, "Service Contract Labor Standards" FAR 52.222-46, "Evaluation Of Compensation For Professional Employees" FAR 52.237-10, "Identification of Uncompensated Overtime" NFS 1852.231-71, "Determination of Compensation Reasonableness"	

8. Preparation Information (*Include complete instructions for document preparation*)

Data Type: 1

Scope: The Total Compensation Plan shall identify and discuss wages, salaries, and fringe benefits for professional employees and non-exempt service employees in all proposed labor categories, including those personnel subject to union agreements, the Service Contract Labor Standards, and those exempt from both of the above. The Total Compensation Plan and Total Compensation Templates (a) through (e) shall be required for both the prime team members and all subcontractors that meet the criteria in NFS 1852.231-71(d). The Plan shall address the requirements of the Service Contract Labor Standards and commit to the compliance of all wage determinations. The Total Compensation Templates shall be provided as part of the Cost/Price Volume of the proposal, and will be evaluated as part of both the Total Compensation Plan and the Cost/Price Volume.

Upon approval, the Total Compensation Plan shall become a part of the contract as Attachment J-13.s

Content:

(1) State the company name(s) of the major subcontractor(s), using the definition found at NFS 1852.231-71(d).

(2) Provide the contractor's company salary range/wage information for each labor classification identified. Describe planned escalations for exempt and non-exempt employees.

(3) Discuss the contractor's company's fringe benefit policies and practices, including leave programs. Differences between fringe benefits offered professional and non-professional employees shall be highlighted. Indicate any other differences in fringe benefits among working groups. Inclusive of, but not limited to, address the contractor's company policy on short and long term disability insurance, and life insurance, including information on the types of benefits offered, the effective date of coverage, and the company share of premium costs. Discuss other salary payment policies, such as vacation leave, sick leave, paid-time off, cost-of-living adjustments, overtime pay, holiday pay, and any other premium pay anticipated.

JSC Form 2341 (Rev February 26, 2002) (MS Word August 1995) (Previous editions are obsolete.)

(4) Describe the contractor's company policy on health insurance coverage, including information on the types of health insurance benefits offered, the company share of premium costs, what co-pays are required, the deductibles, the effective date of coverage, and the anticipated escalation of insurance costs.

(5) Describe the contractor's policy on retirement/savings plans, including how much the company provides toward the plan, information on vesting, and details on when the specific benefits are allocated to the employees.

(6) If uncompensated overtime is proposed, it shall be in accordance with FAR 52.237-10, "Identification of Uncompensated Overtime". If proposed, the contractor shall discuss the effects of uncompensated overtime on the Total Compensation Plan, and provide a discussion as to whether the uncompensated overtime is voluntary or involuntary. Describe the possible effects that uncompensated overtime will have on employee morale and retention. The contractor shall provide a copy of the company policy for uncompensated overtime with proposal.

(7) The contractor shall describe incentives to motivate and reward performance and to encourage the retention of personnel. The contractor shall describe the policies, procedures, and experience related to these incentives.

(8) Explain how wage/salary ranges were established. Supporting information shall include data, such as recognized national and regional compensation surveys and studies of professional, public and private organizations used in establishing this proposed TCP. The contractor shall provide written support to demonstrate that its proposed compensation is reasonable.

(9) The contractor shall describe their commitment for compliance with the Service Contract Labor Standards and all wage determinations. The contractor shall include the rationale for any conformance procedures used or those Service Contract Labor Standards employees proposed that do not fall within the scope of any classification listed in the applicable wage determination.

Format: Contractor's format is acceptable but must include the content listed above.

Distribution:
(1) Contracting Officer (1 electronic copy and 1 hard copy with signature)
(2) Contracting Officer's Representative (1 electronic copy and 1 hard copy)
(3) Contractor Industrial Relations Officer (1 electronic copy)

Submission:
(1) Initial: Due with proposal
(2) Frequency: Update and submit upon any major TCP changes, and update every three years.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
External Customer Plan	09/07/2014	MGMT-08	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Contractor Plan for Identifying External Customers for JSC Capabilities	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
NPD 1050.1 "Authority to Enter into Space Act Agreements	MGMT-03 Contract Management Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The External Customer Plan (ECP) describes the Contractor's multi-year approach for identifying, attracting, and retaining external customers for JSC. The intent of the plan, is to allow the contractor to market and use HHPD Directorate facilities, equipment, contractor personnel, and limited NASA capabilities on a non-interference basis, for the purposes of maintaining, and upgrading critical skills, and off-setting the Government's cost of maintaining such capabilities.

The ECP will be negotiated, and agreed upon by the contractor and NASA, prior to approval.

Upon approval, the ECP will become a part of the contract as Attachment J-20.

After the finalized ECP is approved by NASA, the Contractor shall enter into a formal agreement with NASA that establishes the terms and conditions for use of Government property.

A report, referred to as the ECP, shall be provided as part of the Monthly Contract Management Report. The report shall contain a running list of contacts that are being or have been sought through the ECP process.

B. CONTENT:

The plan shall describe the Contractor's approach for retaining skills and offsetting the government's cost of maintaining facilities by supporting External Customers. The plan shall outline cost avoidance targets that the contractor shall be evaluated against. Cost avoidance is defined as the estimated funds that would have been spent by the Government for the maintenance of facilities, equipment, and capabilities had it not have been paid for by the external customer. Also, it includes any funds for facility usage that are provided to the Government.

The ECP shall follow the table of contents below, supplemented by other relevant data identified by the contractor:

1. Executive Summary-summarize the plan's key points and approaches, and include targets from Table 1.
2. Infrastructure Development:

   i. Directorate Capabilities, Constraints, and Policies:
      a. Identify and evaluate internal capabilities not generally available from the commercial market and unique to NASA.
      b. Provide a comprehensive checklist of all constraints and policies the Customer must meet in order to operate in the SA facilities.
      c. Provide a comprehensive process that reviews the potential customer's requirements against Directorates capabilities, constraints, and policies.
      d. Describe plans to resolve issues between customer requirements and Directorate schedules, capabilities, con-

straints, and policies.

e. (Goal: These checklists and processes will be used to screen/vet potential customers, with the intent that if they satisfy all constraints it makes them eligible to enter into an agreement with the contractor or NASA)

ii. Procedures:

a. Identify and describe procedures for reducing/eliminating conflict between government and non-government work.
b. Identify and describe procedures for coordinating user requests for new services within pre-existing commitments to ensure compatibility and fulfillment with existing resources.
c. Identify and describe procedures for protecting data between companies and potential Organizational Conflicts of Interest.
d. Identify schedules and metrics for staying within the plan.

3. Costs:

a. Describe your plan to assist NASA in establishing a price list for use of the Directorates' facilities and capabilities. Identify all factors that you will consider in determining the costs (e.g., equipment maintenance and replacement costs).
b. Describe your approach for determining the cost avoidance to NASA for each External Customer agreement utilizing accepted accounting practices. Include actual reimbursement to NASA, auditable cost offsets and any other factors deemed appropriate. Propose a format for reporting this data to NASA.
c. Provide your definition of a "completed" or "booked" External Customer Agreement.

4. Recruiting:

i. Identifying Potential Customers: Describe plans for identifying potential customers, both initially and long-term.
ii. Marketing JSC Resources: Describe plans for marketing to potential customers, and the estimated associated costs.

5. Integration Support:

i. Describe plans to support both NASA and the customer during agreement development and negotiations.
ii. Describe plans to document the customer's requirements and how they satisfied all constraints and policies. (This data will be used to demonstrate compatibility between the External Customer's requirements and NASA's facilities. It may also be utilized in the formulation of the formal agreement with the customer, as needed).

6. Implementation:

i. Describe your approach to implementing and executing the External Customer's requirements from the point of a signed agreement/commitment through completion of the External Customer activity.
ii. Provide milestones and metrics for documenting progress.

7. Reporting:

i. The contractor shall submit monthly reports as part of the Contract Management Report summarizing their progress.
ii. Reports shall include, at a minimum: Summaries of contacts made, and potential customers, and the associated:
   1. Amount of work expected
   2. Anticipated activities
   3. Timeframe/ Length of use
   4. Level and type of support by the contractor
   5. Estimated support (including cost) of the contractor

6. Facility equipment and infrastructure required
7. Additional details not otherwise addressed (e.g., operations, setup, teardown, returning systems to neutral state)

C. FORMAT:

Contractor's format is acceptable. The ECP shall be delivered in native format and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Technical Innovation Proposed Contract Language	09/07/2014	MGMT-09	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide proposed contract language for technical innovations.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-01 Contract Management Plan MGMT-03 Contract Management Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

To provide proposed contractual language for proposed technical innovations for consideration by the Government. The contractual language may cut across the SOW, any IDIQ Task/Delivery Orders, and/or across multiple IDIQ Task/Delivery Orders. Such contractual language shall be implementable by the Offeror and may be incorporated into the contract through mechanisms such as SOW language, Task Order additions/modifications, additions to other DRDs, or unique contract clauses.

B. CONTENT:

The contractor shall propose innovative techniques and methods that would benefit the Government, and in particular, the Human Health and Performance Directorate. If accepted, proposed changes will be authorized and incorporated into the appropriate location of the contract or within this DRD following contract award.

C. FORMAT:

Contractor's format is acceptable.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Organizational Conflicts of Interest (OCI) Mitigation Plan	09/07/2014	MGMT-10	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Used when the contractor proposes to resolve an organizational conflict of interest by mitigation.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
FAR Subpart 9.5, Organizational and Consultant Conflicts of Interest	H.15 Mitigation of Organizational Conflict of Interest, H.16 Disclosure of Organizational Conflict Of Interest After Contract Award

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Organizational Conflict of Interest (OCI) Plan describes the contractor‘s approach to mitigate potential OCI issues created by the performance of work in the RFP.

CONTENT:

The Organizational Conflict of Interest (OCI) Mitigation Plan shall:

1. Demonstrate an understanding of (1) OCI principles and (2) the full breadth of OCI issues and the types of harm that can result.

2. Describe the actions the contractor intends to take to mitigate the OCIs identified in the RFP. If using a firewall, explain how these actions will operate to successfully address the conflict without adversely affecting performance of the contract. Additionally, identify any potential OCIs created by the requirements of this RFP which the contractor intended to resolves using methods other than mitigation. Specific mitigation strategies shall be appended to the mitigation plan; specific plans to limit future competition will be reflected in the clause at NFS 1852.209-71, ―Limitation of Future Contracting.‖

3. Require the reporting of all potential/actual OCIs during performance of the contract. An OCI report shall include (1) a description of the conflict, (2) the plan for resolving the conflict, and (3) the benefits/risks vis-à-vis contract performance associated with plan approval/acceptance.

4. Include a requirement to update this plan as necessary to address specific OCIs. All updates to the plan must be approved by the contracting officer and the updates/changes must be incorporated in the contract to be effective.

5. Define company roles, responsibilities, and procedures for screening (i.e., identifying/recognizing, analyzing/evaluating, resolving, and reporting) existing and new business opportunities for actual/potential OCIs.

6. Identify any affiliated companies/entities (e.g., a parent company or a wholly-owned subsidiary) and procedures for coordinating OCIs with such affiliated companies/entities.

7. Explain how the contractor will flow down the provisions of this mitigation plan to any subcontractor that may have a conflict with regard to performing the requirements of this contract. Discuss affected subcontractors’ OCI program as

it relates to this contract and specifically explain how affected subcontractors will identify, resolve, and report OCIs associated with this contract.

8. Establish and require entrance training for new employees, refresher training for existing employees, and exit training for departing employees.

9. Define organizational and employee sanctions for violations of established OCI procedures/requirements/guidelines.

10. Require periodic self-audits to ensure compliance with established OCI procedures/requirements/guidelines.

11. Define records related to the OCI plan (e.g., training and audit records) that will be made available to the Government upon request.

B. FORMAT:

The Contractor's format is acceptable. The Organizational Conflict of Interest Mitigation plan shall be delivered in native format and shall be compatible with JSCs standard software loads.

C. MAINTENANCE:

See Data Requirements list.

D. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Small Business Subcontracting Plan and Reports	09/07/2014	MGMT-11	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To describe the Contractor's planned approach to meeting Small Business Subcontracting.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-01 Contract Management Plan MGMT-03 Contract Management Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

FAR 52.219-9 Small Business Subcontracting Plan
NFS 1852.219.75 Reporting Requirements

SCOPE:

The WBS shall encompass all the products and services required to achieve all the requirements of this contract. The WBS shall subdivide the work to be accomplished into elements that serve as the basis for detailed planning and control, and in addition, permit collection of cost and schedule data for each element.

B. CONTENT:

At a minimum, the offer shall address the following elements:

1. Identification of Small Businesses whose offer is part of the proposal
2. Small Business Category and percentage of the proposal assigned for each subcontractor
3. Management approach to subcontracting with small disadvantaged, Women-owned, HUB Zone, Veteran Owned, and Service Disabled Veteran Owned businesses, and MSIs.
4. For future subcontracting: Area of work, percentage of contract that will be subcontracted, potential subcontractors and their small business subcategory classification.
5. For future subcontracting: Management strategy that will be used to assure subcontractors are qualified to perform the assigned contract scope.

REPORTS:

1. Contractors are required to submit subcontracting data in the Electronic Subcontracting Reporting System (eSRS) which has replaced the paper Standard Form 294 and SF 295 Summary Subcontracting Reports.
2. All Contractors are required to register and file both types of subcontracting reports (SF 294 and SF 295 data) using the eSRS system. The web-site to register is www.esrs.gov.
3. In addition to eSRS submission, the Contractor shall provide a summary of small business data. Compared to established goals per DRD-HHPC-MGMT-03, Contract Management Report.

C. FORMAT:

The Contractor's format is acceptable. Small Business Subcontracting Plan shall be delivered in native format and be compatible with the JSC standard software loads.

D. MAINTENANCE:

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Contract Close-Out Plan	09/07/2014	MGMT-12	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To describe the Contractor's planned approach for the Contract Close-Out.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-01 Contract Management Plan BP-10 Reprocurement Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This plan shall provide the details necessary to transition the contract to any follow-on contract, and to close out the existing contract.

B. CONTENT:

The Contract Closeout Plan content and deliverables shall include:

1. Implementation Strategy
2. Task description and schedule
3. Staffing Profile
4. Cost Estimate
5. Plan for delivery of final documentation, including electronic copies of all contract files
6. Plan for transfer and/or disposal of all Government Property

C. FORMAT:

The Contractor's format is acceptable. The Contract Closeout Plan shall be delivered in native format and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Environmental and Energy Consuming Product Compliance Reports	09/07/2014	MGMT-13	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Used to complete JSC's required annual report to NASA HQ on affirmative procurement, waste reduction, energy efficient product procurement, and ozone depleting substances.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
JPR 8550.1, JPR 8553.1	MGMT-01 Contract Management Plan BP-10 Re-Procurement Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This report shall provide the details necessary for the Environmental and Energy conserving efforts related to HHPC.

B. CONTENT:

This report is submitted annually for the previous fiscal year activities. If the contract is for only a portion of the fiscal year, this report shall be submitted for that portion of the fiscal year.

When a contract ends or is terminated prior to the end of a fiscal year, the Contractor shall provide this report for the activities performed for that portion of the fiscal year that the contract was in place and the report shall be submitted within 30 days of the contract end date.

For Section I and III, where the Contractor does not purchase any designated product during the fiscal year, the report shall be a statement to that effect.

For Section IV, if the Contractor does not purchase, own, operate, maintain, or repair ODS equipment on-site ; or does not store, purchase or use ODS chemicals, the report shall be a statement to that effect.

Fiscal year is the Federal Government fiscal year and is defined as October 1 through September 30.

I. Annual Sustainable Acquisition Report

The Contractor shall track and report each December 1 to the JSC Environmental Office the following information regarding the purchase by the Contractor (including subcontracts) of all products on the U. S. Environmental Protection Agency's Comprehensive Procurement Guideline list and items on the USDA Farm Bill Biobased list:

a. The total amount of each item purchased during the previous fiscal year in $,

b. The total amount of each listed item purchased during the previous fiscal year that contained at least the minimum recommended percenatges of recycled content or biobased content during the fiscal year in $,

c. The total amount of each listed item purchased during the previous fiscal year that contained some recycled content or biobased content but less than the minimum recommended percentages of recycled content or biobased content during the fiscal year in $,

d. The number of waivers and the name of the item each waiver was requested for submitted to the Environmental Office during the previous fiscal year,

e. The total amount purchased for each waivered item during the previous fiscal year in $, and

f. A narrative explanation of constraints for purchasing each item that did not meet affirmative procurement or biobased content requirements during the previous fiscal year.

The JSC Environmental Office will provide an electronic spreadsheet to submit the Annual Sustainable Acquisition portion of this DRD. Contact the Environmental Info line at 281-483-6207 or send an email to JSC-Environmental-Office@nasa.gov to get a copy of this spreadsheet.

II.a Waste Reduction Activity Report

The Contractor shall track and report each December 1 to the JSC Environmental Office any new process improvements or programs undertaken by the Contractor (or subcontractors) that have contributed to waste reduction during the previous fiscal year. Waste reduction means preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products. This may be done through recycling* or waste prevention**. *This may be accomplished through source reduction and/or by increasing reuse and recycling of items that would normally go to the landfill (trash).* The information will be included in JSC's annual report to NASA HQ on waste reduction activities. Limit responses to one page or less per item. The response should include a description of the activity, the materials or wastes reduced, an estimated volume or weight of reduction, and a contact name and phone number for a person knowledgeable about the reduction activity.

* Recycling means the series of activities, including collection, separation, and processing by which products or other materials are recovered from the solid waste stream for use in the forms of raw materials in the manufacture of products other than fuel for producing heat or power by combustion.

**Waste prevention means any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials.

II.b For Construction/Facility Modification Contracts Only:

The Contractor shall track and report to the JSC Environmental Office the total weight in pounds of material sent to the landfill (this does not include shipments managed and paid for by the Environmental Office or their support contractor) and the total number of pounds of material recycled by media (scrap metal, wood, concrete, soil). The report is due within 30 days of completion of all waste generating and recycling activities or of final waste shipments associated with the project and in no case later than completion of the contract.

III. Annual Energy Efficiency Product Procurement Report

The Contractor shall report to the JSC Energy Manager, on December 1 of each year, information on purchases of energy consuming products made by the Contractor (including subcontracts) beginning upon contract start. This includes the purchase of

premium efficiency motors and efficiency lighting covered by the Energy Policy Act of 2005. The report shall provide the following:

a. A list of all energy consuming products purchased during the previous fiscal year.
b. The total purchase cost of each item on the list.
c. A designation of which items were Energy Star or Federal Energy Management Program (FEMP)-sanctioned.
d. For each Energy Star or FEMP-sanctioned product purchased, provide:
   i. The simple payback value as determined by the contractor's life cycle cost analysis.
   ii. The annual savings in dollars and BTUs due to the purchase of the item
e. Metrics which show the effectiveness of the contractor's purchases
   i. Percentage of purchased products that are Energy Star and FEMP-sanctioned against the total number of energy consuming products purchased.
   ii. Total dollar value of the purchased products that are Energy Star and FEMP-sanctioned against the total dollar value of all energy consuming products purchased.

IV. Ozone Depleting Substances (ODS) Reports

The Contractor shall track and report each December 1 to the JSC Environmental Office the following information for the previous fiscal year related to ODS equipment that the contractor purchases, owns, operates, maintains, or repairs on-site:

a. A list of the names of all EPA-Certified service technicians employed and their certification dates
b. A list of any ODS recovery/recycling equipment that will be used and copy of the 40 CFR 82.162 EPA registration
c. A list of any refrigeration/air conditioning units with a full charge of more than 50 pounds, not previously reported, including
   i. any identifying equipment numbers
   ii. the location of the equipment (building/room)
   iii. the owning organization or contract name and number
   iv. a narrative description of the equipment.
   v. refrigeration or air conditioning equipment with a full charge of > 50 pounds, permanently removed from service during the year.
d. For each ODS chemical stored, purchased or used, track and report each December 1 for the previous fiscal year:
   i. ODS Chemical Name;
   ii. Quantity stored (pounds);
   iii. Quantity purchased (pounds); and
   iv. Quantity used (pounds).

C. FORMAT:

The Contractor's format is acceptable. The Contract Closeout Plan shall be delivered in native format and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Information Technology (IT) Capital Planning and Investment Control (CPIC)	12/01/2011	IT-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
To document the Contractor's compliance with Federal and NASA IT CPIC Planning and Reporting regulations and requirements.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

Information Technology (as defined in the Clinger-Cohen Act) is subject to certain scrutiny and reporting requirements as set forth in Legislative actions, Executive and Agency mandates, and directives. The Office of Management and Budget (OMB) Circular A-130 establishes the foundation for CPIC. OMB Circular A-11 establishes the guidelines and requirements for reporting to the Executive Branch. Any additional reporting requirements associated with the CPIC data collection and reporting process will be covered by this DRD.

B. CONTENT:

In conformation with CPIC process, the contractor shall participate in data collection and reporting efforts. The contractor shall furnish the data needed for NASA to comply with OMB Circular A-11 (This requirement is completed through the monthly 533 reporting document).

Annually, the Contractor shall submit its Fiscal Year (FY) spending plans for review, and approval prior, to the beginning of the FY. Format, reporting processes, and procedures will be provided annually, based on the JSC and Agency requirements.

Examples of documentation, formats, processes, procedures, and structures can be provided upon request. However, all formats, processes, procedures, and structures are subject to changes.

C. FORMAT:

IT CPIC documentation shall be delivered in native format, and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

Clinger-Cohen Act
OMB Circular A-130
OMB Circular A-11

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Information Technology (IT) Security Program Plan and Reports	09/07/2014	IT-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
To ensure that IT security reporting requirements are met for all IT systems utilized during work associated with TOs on this contract.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
NFS 1852.204-76: Security Requirements for Unclassified IT Resources NPR 2810.1(series): Security of Information Technology. OMB Circular A-130: Management of Federal Information Resources	

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

All contracts that purchase, lease, network to, or otherwise utilize Government-funded IT (as defined by the Clinger-Cohen Act of 1996 and referenced by OMB Circular A-130) must comply with NASA IT Security Requirements.

B. CONTENT:

IT SECURITY MANAGEMENT PROGRAM PLAN:

The Contractor shall submit an IT Security Management Program Plan for its unclassified technology information resources. This program plan shall describe the policy, processes, and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contact. The Contractor's IT Security Management Program Plan shall be compliant with the IT security requirements in accordance with Federal and NASA policies as referenced in OMB Circular A-130 and NPR2810.1(series).

IT SECURITY PLAN:

The Contractor shall have Information Systems Security Officer (ISSO) who is responsible for the contractor's system(s) in accordance with the definitions set forth in NPR2810.1(series). The IT security plan shall be kept up to date as changes to the baseline configuration of the system occur and shall be documented in the IT Security Plan. Note: An IT Security Plan is specific to a system or group of systems, while an IT Security Management Program Plan is defined as the elements a contractor has outlined to meet the IT Security requirements for interfacing with other contractors and NASA, training requirements and meeting the requirements in NPR 2810.1(series).

IT SECURITY AWARENESS TRAINING:

Employees subject to this contract shall complete the NASA approved IT Security Awareness Training annually. The contractor shall provide evidence that periodic IT security awareness training has been met for all employees subject on this contract. The contractor shall submit periodic reports (as required by the CO) detailing the overall status of the annual training program. The annual training program is defined as the period from October 1st through September 30th.

IT SECURITY ROLE BASED TRAINING:

Employees subject to this contract shall complete NASA approved IT Security Training annually related to the following Role Based functions:

- IT Security Manager
- Information System Owner (ISO)
- Information Systems Security Officer (ISSO)
- Organizational Computer Security Official – Representative (OCSO-R)

The contractor shall provide evidence that periodic IT security training has been met for all employees subject on this contract. The contractor shall submit periodic reports (as required by the CO) detailing the overall status of the annual training program. The annual training program is defined as the period from October 1st through September 30th.

INFORMATION ON EMPLOYEES IN SENSITIVE POSITIONS/ASSIGNMENTS REPORT:

The Information on Employees is Sensitive. ITS Positions/Assignments Report shall provide information annually for personnel screening as required by NPR 2810.1(series), and NPR 1600.1 on position risk.

IT POINT OF CONTACT:

The contractor shall identify a point of contact that NASA may reach in its attempt to address IT and IT Security issues. The point of contact shall have the authority to ensure appropriate actions occur.

C. FORMAT:

The product shall be in a Microsoft Office compatible format.

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

See Applicable Documents List (ADL), Attachment J-1

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
NF533 DRD	04/09/2013	BP-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

Provide a basis for reporting and evaluating cost and expenditure in support of this contract. The data contained in the reports must be auditable using Generally Accepted Accounting Principles. Supplemental cost reports submitted in addition to the NF533 must be reconcilable to the NF533.

5. DRD Category: *(check one)*

- ☐ Technical
- ☒ Administrative
- ☐ SR&QA

6. References *(Optional)*

NPR 9501.2E: NASA Contractor Financial Management Reporting

7. Interrelationships *(e.g., with other DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

NASA Form 533 (NF533) Reports:

The NF533 reports provide data necessary for the following:

1. Projecting costs and hours to ensure that dollar and labor resources realistically support project and program schedules.
2. Evaluating contractors' actual cost and fee data, in relation to negotiated contract value, estimated costs, and budget forecast data.
3. Planning, monitoring, and controlling project and program resources.
4. Accruing cost in NASA's accounting system, providing program and functional management information, and resulting in liabilities reflected on financial statements.

Cost is a financial measurement of resources used in accomplishing a specified purpose, such as performing a service, carrying out an activity, acquiring an asset, or completing a unit of work or project. NASA Procedural Requirements (NPR) 9501.2E entitled "NASA Contractor Financial Management Reporting," or its most current revision, identifies the cost reporting requirements for a contract. NF533 formats are provided in Appendix A.

NASA is required by law, to maintain accrual accounting, which requires cost to be reported in the period in which benefits are received, without regard to time of payment.

The reports (NF533M [Monthly] and NF533Q [Quarterly]) are the official cost documents used at NASA for cost type, price redetermination, and fixed price incentive contracts. The data contained in the reports must be auditable using Generally Accepted Accounting Principles. Supplemental cost reports submitted in addition to the NF533 must be reconcilable to both the NF533M and NF533Q.

Common NF533 Cost Elements

Examples of accrual accounting for common cost elements reported on the NF533 are below:

Cost Elements	Definitions
Labor	Reported to NASA as hours are incurred. Labor is reported in the following classifications: • Prime/Direct Regular Labor Hours • Prime/Direct Overtime Hours • Total Prime/Direct Hours • Subcontractor/Indirect Regular Hours • Subcontractor/Indirect Overtime Hours • Total Subcontractor/Indirect Hours • Contract Management Administration (CMA) Hours • Total Hours • Onsite WYEs/EPs (direct and indirect) • Offsite WYEs/EPs (direct and indirect) • Total WYEs/EPs (direct and indirect) • Total Prime/Direct Labor Dollars • Total Subcontractor Labor Dollars • Total Labor Dollars
Equipment & Material (commercial off the shelf)	Generally reported to NASA when received and accepted by the contractor.
Manufactured Equipment	Defined as any equipment that is produced to specific requirements that make it useless to anyone else without rework. Cost should be reported to NASA, as the equipment is being manufactured. The straight-line method for estimating accrued costs, or the use of supplemental information obtained from the vendor are acceptable methods used to calculate the cost accrual amount.

Leases	Reported to NASA using a proration over the life of the lease.
Travel	Reported to NASA as costs are incurred.
Subcontracts & Other Direct Costs	Actual and estimated costs reported by prime contractors shall include subcontractors' incurred costs for the same accounting period. Where subcontract costs are material, they should be separately identified on NF533 reports. The prime contractor shall include in the total cost of each subdivision of work, the accrued cost (including fee, if any) of related subcontractor effort. Subcontractors should, therefore, be required to report cost, to the prime contractor, using the accrual method of accounting. If the G&A and fee reported by a subcontractor are at the total subcontractor level, these costs must be allocated to specific sub- divisions of work. Data submitted by the subcontractor should be structured similar to the prime contractor's NF533 to enable the prime contractor to properly report to NASA. For Firm Fixed Price (FFP) subcontracts with a contract value greater than $500,000, the prime contractor is required to document the methodology used to generate the subcontractor costs reported, and provide this information to the Contracting Officer and the JSC Deputy Chief Financial Officer of Finance. All subcontractor costs should be reported by the Governments' Fiscal Year.
Unfilled Orders	Reported as the difference between the cumulative cost incurred to date, and amounts obligated to suppliers and subcontractors.
Fee	Should be accrued as earned using a consistent and auditable method to determine the amount. For example: an acceptable method would be to use historical data to determine the amount to accrue each month. The fee should be reported on the NF533 following the "Total Cost" line. Award fee must be reported by the following categories: Base Fee, Fee Earned, Interim Fee, Provisional Fee, Potential Additional Fee, and Total Fee. If any of the above fee categories do not pertain, they should not be included in the NF533.
Prompt Payment Discounts	Cumulative cost reported to NASA should be the full incurred cost. The prompt payment discount amount taken should be reported as a separate line item on the NF533 below the cumulative cost amounts for the contract.

Common NF533 Data Elements

The chart below describes the data elements to be included in the NF533M Reporting Category Element of Cost listed above:

Data Element Name	Description
Reporting Category (RC)	Task, Deliver Order, Work Breakdown Structure
Prior Month Actual Cost (7a)	Prior month actual cost incurred for each RC (column 7a on NF533)
Prior Month Actual HR/WYE (7a)	Prior month actual HR/WYE incurred for each RC (column 7a on NF533)
Prior Month Planned Cost (7b)	Planned cost for prior month for each RC (column 7b on NF533)
Prior Month Planned HR/WYE (7b)	Planned HR/WYE for prior month for each RC (column 7b on NF533)
Cumulative ITD Actual Cost & HR/WYE (7c)	Contract inception to date (ITD) actual cost for each RC (column 7c on NF533)
Cumulative ITD Planned Cost & HR/WYE (7d)	Contract ITD planned cost for each RC (column 7d on NF533)
Cumulative to date GFY Actual Cost & HR/WYE (7e)	Actual cumulative cost & HR/WYE for the current government fiscal year (GFY) through prior month actual cost for each RC (column 7e on the NF533)
Cumulative to date GFY Planned Cost & HR/WYE (7f)	Planned cumulative cost & HR/WYE for the current GFY through prior month planned cost for each RC (column 7f on the NF533)
Current Month Estimated Cost (8a)	Cost estimate for the current month for each RC (column 8a on NF533)
Current Month Estimated HR/WYE (8a)	HR/WYE estimate for the current month for each RC (column 8a on NF533)

Current Month +1 Estimated Cost (8b)	Cost estimate for next month for each RC (column 8b on NF533)
Current Month +1 Estimated HR/WYE (8b)	HR/WYE estimate for next month for each RC (column 8b on NF533)
Balance of Contract Cost & HR/WYE (8c)	Balance of contract cost & HR/WYE for the remaining estimate to complete for each RC (column 8c on NF533)
GFY Cumulative EAC Cost & HR/WYE (8d)	Estimated cost & HR/WYE at completion for the current GFY (column 8d on NF533)
GFY Cumulative Authorized Cost & HR/WYE (8e)	Total cumulative cost &HR/WYE for the approved task order value for the current GFY (column 8e on NF533)
Contractor Estimate at Completion (EAC) (9a)	Contractor estimate for the total EAC entire scope of contract for each RC (column 9a on NF533)
Contract Value (9b)	Contract value based upon all contract modifications for each RC (column 9b on NF533)
Unfilled Orders Outstanding (10)	Unfilled orders outstanding at the end of the reporting period for each RC (column 10 on NF533)
Reporting Category Level	Used by NASA's accounting system to determine the RC level
Reporting Category Identifier	Identifies if the RC is an actual Reporting Category or a Sub-Reporting Category

A Reporting Category (RC) correlates to a task order (TO), delivery order or Work Breakdown Structure (WBS) and is the level at which cost is reported on the NF533M. Each RC can have Sub-Reporting Category Line Item Numbers (CLINs), or subtasks, containing detailed cost elements that add up to a RC, and some can even have sub-CLINs or work packages. The RC levels will need to be reported as requested in Appendix B. A separate report is required for each NF533M: 1) Contract Summary, 2) Task Level, and 3) Subtask Level. Work package level data should be available upon request. **The contractor is required to coordinate with the NASA Resource Analyst assigned to the contract in order to establish and maintain the Reporting Categories, CLINS, and sub-CLINs the contractor shall use to comply with this data requirement.**

Overhead cost and HR/WYE (including CMA) and award fee costs should be allocated to tasks, subtasks, and work packages in the task and lower level reports, using a methodology coordinated with the NASA Lead Budget Analyst.

Column 7b (planned cost incurred/hours worked for the month), 7d (cumulative planned cost incurred/hours worked) and 7f (cumulative to date GFY planned cost incurred/hours worked) of the NF533M represent the negotiated baseline plan for the contract. There may not be a relationship between the estimates provided in columns 8 of the NF533M to columns 7b, 7d and 7f. Columns 7b, 7d and 7f represent the legally binding contract negotiated baseline plan plus all authorized changes.

Uncompensated overtime hours worked should be reported on NF533 reports as a separate line item, in the footnotes, or in supplemental reporting.

Short and long-term cost estimates, which include all data entered in columns 8 and 9a on the NF533M and NF533Q reports, shall be based on the most current and reliable information available.

Prior period cost adjustments shall be reported in column 7a and 7c of NF533M and column 7a of the NF533Q as soon as identified with a footnote discussing the reasons for and amounts of the adjustments and time period the adjustment relates to, delineated by government fiscal year, if affecting more than one fiscal year.

Personal Property & Equipment Reporting

For all Personal Property & Equipment, purchased or fabricated, the contractor must obtain:

1. Prior approval by the Contracting Officer (CO) or their delegated Property Administrator (PA)
2. The NASA Capitalization or Expense determination from the NASA Finance Property office

These must be obtained prior to cost being incurred for the property acquisition/fabrication. This will help ensure appropriate 533 reporting for items identified as capital. The capitalization/expense determination governs the contractor cost reporting requirements associated with the acquisition.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

For all Personal Property & Equipment, purchased or fabricated, determined by NASA to be Capital, the contractor cost reporting structure to NASA shall:

1. Report the costs of each capital asset (i.e., each individual end item deliverable) as a separate reporting category on the NF533 or other required cost reporting format
2. Maintain a reporting structure that allows for the contractor accumulation and reporting of cost separately for each identified capital asset (i.e., each individual end item deliverable)

Capital property is defined by NASA as personal property and equipment, acquired or fabricated, that NASA will have title to and that meets all of the following criteria:

1. Has a total acquisition value equal to, or greater than, $100,000
2. Has a useful life equal to, or greater than, 2 years (no prototypes, test articles, one time use items, etc.) and is not intended for sale in the course of normal operations
3. Has been acquired or constructed with the intention of being used, or available for use, by NASA
4. Has a planned alternative use (current or future) on another project with a separate and distinct research objective

For all Personal Property & Equipment, purchased or fabricated, determined by NASA to be Expense, the contractor is not required to report costs at the detail asset level i.e., as a separate reporting category on the NF533 or other required cost reporting format.

The Center Finance Property Office makes the capitalization/expense determination based on information provided by the NASA Project Manager.

The Center finance property office acquires the information from the NASA Project Manager using the Form NF1739 Alternative Future Use Questionnaire (AFUQ) which is required for each asset valued at, or greater than, $100k. The Center finance property office may utilize a supplemental questionnaire and/or additional communication with the project manager, or their associates, to ensure adequate information is obtained to make the appropriate accounting treatment determination i.e., to Capitalize or Expense the asset.

NF533 Due Dates

The due dates for the NF533M and NF533Q reports are outlined in Chapter 3 of NPR 9501.2E. The following is a summary of the NF533 due date requirements. These due dates do not include the initial due dates for the NF533M and NF533Q reports, which are covered later in this DRD.

NF533 Report	Due Date
NF533M	Due no later than the 10th calendar day of the month. In the event the 10th calendar day falls on a non-business day, the NF533M shall be due the next working day.
NF533Q	Due not later than the 15th calendar day of the month proceeding the quarter being reported.

The due dates reflect the date the NF533 reports are received by personnel on the distribution list, not the date the reports are generated or mailed by the contractor. It is critical that the NF533 reports are submitted in a timely manner to ensure adequate time for NASA to analyze and record the cost into the NASA accounting system.

An initial NF533 report is required in the NF533Q format to be used as a baseline for the life of the contract (see Appendix A for format). The initial (baseline) NF533Q report shall be submitted by the contractor within 30 days after authorization to proceed has been granted. The initial report shall reflect the original contract value detailed by negotiated reporting categories and shall be the original contract baseline plan. In addition to the initial (baseline) report, monthly NF533 reporting (NF533M) shall begin no later than 30 days after the incurrence of cost.

NF533 Final Submission Upon Contract Completion

Monthly NF533 reporting is no longer required once the contract is physically complete, provided the final cost report includes actual cost only (no estimates or forecasts). The contractor must continue to submit monthly NF533 reports as long as estimates for the

following period are included. If the final cost of a contract changes after the submission of the "final" contractor cost report, the contractor must submit a revised NF533 report in the month the cost change is recognized.

Electronic NF533 Flat File Requirement

(will only be submitted if requested during the course of the contract)
If requested by NASA, the contractor shall submit a Flat File NF533M electronically by the same due date. The data shall be submitted via email using the Government prescribed flat file format (if requested, an example of the Agency Defined File Format layout details will be provided by NASA).

NF533 Report Distribution

LF3	Cost Accounting (1 electronic copy. If electronic copy does not have a .pdf file signature, a signed hardcopy is required)
BH	Contracting Officer (1 electronic copy. If electronic copy does not have a .pdf file signature, a signed hardcopy is required)
LD3	Budget/Program Analysts (electronic copies are required)
SA	Directorate Office (electronic copies as required)
SA2	Division Office Technical Manager (electronic copies and required)
SA4	Division Office Technical Manager (electronic copies and required)
SD	Division Office Technical Manager (electronic copies and required)
SF	Division Office Technical Manager (electronic copies and required)
SK	Division Office Technical Manager (electronic copies and required)
E*	Division Office Technical Manager (electronic copies and required)
Other	Division Office Technical Manager (electronic copies and required)

Access to a server with the Excel NF533 file is preferred to e-mail electronic copies. If a server is not available, a more detailed report distribution list will be provided to the contractor by the Lead Budget Analyst.

NF533 Supplemental Reporting

Supplemental reporting requirements will be submitted during the course of the contract in accordance with direction in Appendix C.

Appendix A – NF533 Cost Reporting

NF533M Format

MONTHLY CONTRACTOR FINANCIAL MANAGEMENT REPORT (533M)															2. Report Month Ending Number of Operating Days
To: National Aeronautics & Space Administration Lyndon B. Johnson Space Center Attn: Contracting Officer															3. Contract Value a. Cost b. Fee
From: Name of Contractor Address of Contractor	1. Description of Contract Type: Scope of Work: HHPC Contract Number: Latest Amendment:									Authorized Contract Representative: (Signature)			Date:		4. Funding Limitation 5. Billing a. Invoiced b. Payments Received
6. Reporting Category							8. Estimated Cost/Hours			GFY Cumulative		9. Estimated Final		10.Unfilled Orders	
	Prior Month		Cumulative												
Element of Cost	Actual 7a	Plan 7b	Actual 7c	Plan 7d	GFY Actual 7e	GFY Plan 7f	Current 8a	Current +1 8b	Balance of Contract 8c	GFY EAC 8d	GFY Auth 8e	Contract EAC 9a	Contract Value 9b	Unfilled 10	
Prime Labor Hours														SEE	
Base Hours														REPORT	
Overtime Hours														REPORT	
Indirect Labor Hours															
Total Prime Labor Hours															
Partner Labor Hours															
Base Hours															
Overtime Hours															
Indirect Labor Hours															
Total Partner Labor Hours															
Total Labor Hours															
On-site WYEs															
Off-site WYEs															
Total Work Year Equivalents (WYEs)															
Total Prime Labor Dollars															
Total Partner Labor Dollars															
Total Labor Dollars															
Materials/Equipment															
Subcontracts															
Facilities															
Travel															
ODC - Misc.															
Phase In															
Prior period Adjustment (Explained below)															
Total Direct Cost															
Award Fee															
Total Cost Plus Fee															
Cost Per WYE															
Vendor Discounts															
Total Uncompensated Overtime (UO) Hours															

NF533Q Format

PAGE _____ OF _____ PAGES

National Aeronautics and Space Administration

Quarterly Contractor Financial Management Report

Form Approved
O.M.B. No. 2700-0003

2. REPORT FOR QUARTER BEGINNING

TO:

FROM:

3. CONTRACT VALUE

a. COST $

b. FEE $

1. DESCRIPTION OF CONTRACT

a. TYPE

b. CONTRACT NO. AND LATEST DEFINITIZED MODIFICATION NO.

4. FUND LIMITATION $

c. SCOPE OF WORK

d. AUTHORIZED CONTRACTOR REPRESENTATIVE *(Signature)* DATE

5. BILLING

a. INVOICE AMTS. BILLED $

b. TOTAL PYTS. REC'D. $

6. REPORTING CATEGORY	7. COST INCURRED/ HOURS WORKED			8. ESTIMATED COST/HOURS TO COMPLETE										9. ESTIMATED FINAL COST/HOURS		10. ESTIMATED COMPLETION DATE	11. UNFILLED ORDERS OUTSTANDING
	CUMULATIVE ACTUAL THROUGH PRIOR MONTH a.	CURRENT MONTH ESTIMATE b.	CUMULATIVE ESTIMATE TO DATE c.	MONTH a.	MONTH b.	MONTH c.	QUARTER d.	QUARTER e.	QUARTER f.	BALANCE OF FY- g.	NEXT FY- h.	BALANCE OF CONTRACT i.	TOTAL TO COMPLETE j.	CONTRACTOR ESTIMATE a.	CONTRACT VALUE b.		

NASA FORM 533Q NOV 11 PREVIOUS EDITIONS ARE OBSOLETE.

Appendix B – Contract Required NF533M Format and Supplemental Attachments

MONTHLY CONTRACTOR FINANCIAL MANAGEMENT REPORT (533M)															2. Report Month Ending Number of Operating Days
To: National Aeronautics & Space Administration Lyndon B. Johnson Space Center Attn: Contracting Officer															3. Contract Value a. Cost b. Fee
From: Name of Contractor Address of Contractor	1. Description of Contract Type: Scope of Work: HHPC Contract Number: Latest Amendment:									Authorized Contract Representative:					4. Funding Limitation 5. Billing a. Invoiced b. Payments Received
6. Reporting Category							8. Estimated Cost/Hours			GFY Cumulative		9. Estimated Final		10.Unfilled Orders	
	Prior Month		Cumulative												
Element of Cost	Actual 7a	Plan 7b	Actual 7c	Plan 7d	GFY Actual 7e	GFY Plan 7f	Current 8a	Current +1 8b	Balance of Contract 8c	GFY EAC 8d	GFY Auth 8e	Contract EAC 9a	Contract Value 9b	Unfilled 10	
Prime Labor Hours														SEE	
Base Hours														REPORT	
Overtime Hours														REPORT	
Indirect Labor Hours															
Total Prime Labor Hours															
Partner Labor Hours															
Base Hours															
Overtime Hours															
Indirect Labor Hours															
Total Partner Labor Hours															
Total Labor Hours															
On-site WYEs															
Off-site WYEs															
Total Work Year Equivalents (WYEs)															
Total Prime Labor Dollars															
Total Partner Labor Dollars															
Total Labor Dollars															
Materials/Equipment															
Subcontracts															
Facilities															
Travel															
ODC - Misc.															
Phase In															
Prior period Adjustment (Explained below)															
Total Direct Cost															
Award Fee															
Total Cost Plus Fee															
Cost Per WYE															
Vendor Discounts															
Total Uncompensated Overtime (UO) Hours															

TASK Level Supplemental Required Report

TO	Element of Cost	Prior Mo Actual	Prior Mo Plan	Cum Actual	Cum Plan	GFY Actual	GFY Plan	Current Est	Current+1 Est	Balance of Contract	GFY EAC	GFY Auth	Contract EAC	Contract Value
X.X.X	Prime Labor Hrs													
X.X.X	Partner Labor Hrs													
X.X.X	CMA Hrs													
X.X.X	Total Labor Hrs													
X.X.X	Total WYEs (Direct & Indirect)													
X.X.X	Prime Labor $													
X.X.X	Partner Labor $													
X.X.X	Total Labor $													
X.X.X	Materials/Equipment													
X.X.X	Subcontracts													
X.X.X	Facilities													
X.X.X	Travel													
X.X.X	ODC - Misc.													
X.X.X	Award Fee													
X.X.X	Overhead or CMA													
X.X.X	Total Cost Plus Fee													

SubTASK Level Supplemental Required Report

Sub-TO Description	Sub-TO	Element of Cost	Prior Mo Actual	Prior Mo Plan	Cum Actual	Cum Plan	GFY Actual	GFY Plan	Current Est	Current+1 Est	Balance of Contract	GFY EAC	GFY Auth	Contract EAC	Contract Value
Subtask Title	X.X.X	Prime Labor Hrs													
Subtask Title	X.X.X	Partner Labor Hrs													
Subtask Title	X.X.X	CMA Hrs													
Subtask Title	X.X.X	Total Labor Hrs													
Subtask Title	X.X.X	Total WYEs (Direct & Indirect)													
Subtask Title	X.X.X	Prime Labor $													
Subtask Title	X.X.X	Partner Labor $													
Subtask Title	X.X.X	Total Labor $													
Subtask Title	X.X.X	Materials/Equipment													
Subtask Title	X.X.X	Subcontracts													
Subtask Title	X.X.X	Facilities													
Subtask Title	X.X.X	Travel													
Subtask Title	X.X.X	ODC - Misc.													
Subtask Title	X.X.X	Award Fee													
Subtask Title	X.X.X	Overhead or CMA													
Subtask Title	X.X.X	Total Cost Plus Fee													

Appendix C – Required Supplemental Reporting

Annual Accounting Calendar: The Contractor's accounting calendar for the contract period of performance shall be provided in electronic format to the LD3 lead budget analyst and LF3 Cost Accountant within 10 business days after contract award. An updated accounting calendar shall be submitted annually thereafter in conjunction with the delivery of the September NF533M in electronic format to the LD3 resource analyst and LF3 Cost Accountant.

Contract Year	Month, Calendar Year	Accounting Period Start Date	Accounting Period End Date	Business Days in Accounting Period	Business Hours in Accounting Period

Contractor Variance Report: The contractor shall submit variance reports along with the NF533M when variance described below meets or exceeds +/- 5% at the 1) Summary NF533 level, 2) each task level, and 3) each subtask level. A variance report should include detailed information to substantiate the explanation.

Column 7A current month (actuals) compared to 8A previous month (estimate)
Column 7A current month (actuals) compared to 7B current month (plan)

Monthly Unfilled Orders Report: The Contractor shall submit a report in conjunction with the delivery of the monthly NF533M detailing the unfilled orders outstanding (10). The report shall be broken down by reporting category and CLIN, and should include the item description, the originally reported delivery date and costs, updated delivery date and costs, justifications for delays of greater than 30 days, and justifications for changes in costs greater than 5%. The following format shall be used for this report.

Reporting Category/CLIN	Item Description	Original Estimated Delivery Date	Original Estimated Costs	Adjusted Estimated Delivery Date	Justification for delays greater than 30 days	Adjusted Estimated Costs	Justification for cost changes greater than 5%

Quarterly Estimate Report: If the Contractor's month-end reporting does not align with the last day of the calendar month, the Contractor shall provide a supplemental report for each calendar month ending a Government fiscal quarter (December, March, June, and September). The report shall be broken down by reporting category and CLIN, and should include the original and adjusted 533M *Current Month Estimated Cost and Hours* (8a) that reflect the estimated costs and hours accrued through the last day of the calendar month. All estimated costs shall include unfilled orders expected to be delivered during the adjusted period. The following format shall be used for this report:

A	B	C	D	E	F	G
Reporting Category/CLIN	**533M Current Month Estimate (8a) - Costs**	**533M Current Month Estimate (8a) - Hours**	**Current Month Est. Adj. (Costs)**	**Current Month Est. Adj. (Hours)**	**Total Adj. Current Month Est. (Costs)**	**Total Adj. Current Month Est. (Hours)**
					= B + D	= C + E

Annual Economic Impact Assessment: The contractor shall submit answers to the following questions to the LD3 resource analyst annually, in conjunction with the delivery of the October NF533M. The answers should be estimates only, as this requirement is not intended to be an extensive exercise. The information provided will be rolled-up to create Center-level estimates, and will not identify any specific contract. This information will not be shared at the contract-level with anyone outside NASA.

Appendix C – Required Supplemental Reporting

1. What was the on-board total headcount for this contract as of September 30th? (Please include in-directs and an estimate for your major subcontractors.)

2. For the total workforce indicated in #1 above, approximately how many worked in the local Clear Lake area, including JSC? (JSC includes JSC proper, Sonny Carter Training Facility, and Ellington Field.)

3. What was the approximate dollar value of goods and services (including labor) purchased in the Houston area under this contract during the prior Government Fiscal Year?

4. What was the approximate dollar value of goods and services (including labor) purchased outside the Houston area but within the State of Texas?

Other: Other information may be requested as needed, for example, travel cost detailed by trip or WYE impacts of budget reduction.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Data Management Plan	09/07/2014	BP-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide a description of the Contractor's Data Management Organization approach and processes.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: Government Electronics and Information Technology Association (GEIA) HB 859 Implementation Guide for Data Management

SCOPE:
The Data Management Plan describes the contractor's overall implementation of the data management requirements specified in the contract as integrated by the prime contractor and subcontractors and as planned for each phase of contracted activity.

B. CONTENT:

The Data Management Plan shall contain the following sections:

Data Management - This section shall define the scope and depth of the Contractor's efforts including management, organization, planning, and the relationship of the Data Management program to the Contractor's other administrative and technical organizations. The plan shall specify the Contractor's management policies and identify, by specific reference, standard practices and detailed work instructions to be used in implementing the Data Management program. The plan shall include the following elements: management organization, control procedures, storage and retrieval procedures, subcontractor control procedures, and special restrictions. The plan shall include a preliminary data submittal schedule for fulfilling submittal of data in the specified quantities, specific media (electronic, paper, other), and due dates required.

Document Development -This section shall define the procedures, policies, and formats used to produce, and distribute document contract deliverables. The section shall include specifics on document metadata and numbering schema, and shall reference the contractors' documentation that is used to define internal layout and format requirements, and specific document setup practices that ensure appropriate hard copy and/or electronic output.

C. FORMAT:

The Contractor's format is acceptable. The Data Management Plan shall be delivered in native format and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Configuration Management Plan	09/07/2014	BP-03	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
The DRD describes the Contractor's plan to control the Configuration of hardware and/or software during development, production, certification, and deployment of both qualification and flight hardware within the contractor's facilities, subcontractor's facilities, and those of NASA at JSC.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
NASA-STD-0005 Configuration Management Requirements JPR 1281.8 Product Identification and Traceability MIL-STD-973 Configuration Management	SW-04 Software Code RV-08 Engineering Drawings and Model Files TD-03 Flight Product Critical Design Review Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

ANSI/EIA 649 standard Configuration Managements
NASA-STD-0005 Configuration Management Requirements
EA-WI-027 Configuration Management Requirements
SA-WI-14 Project Management of Flight Hardware Development
JSC-28330 SLSD Configuration Control Management Plan
JPR 8500.4 JSC Engineering Drawing System
SSP 41170 ISS Configuration Management (For ISS Deliverables)
SSP 30695 Acceptance Data Package (ADP) Requirements Specification

SCOPE:

The plan shall describe the Contractor's Management approach and planned implementation methods for maintaining configuration control of qualification and flight hardware and software during the design, development, production, certification, verification, and deployment within its facilities, its subcontractor's facilities, and facilities at NASA/JSC. It defines to the Government how the contractor will maintain records, documentation, drawings, and reports necessary for NASA, to assure that Configuration Management (CM) is maintained throughout the life of the flight product.

B. CONTENT:

The Flight Products CM plan shall address, as a minimum the following:

1.0 Management Organization – this section shall describe and graphically portray the Contractor's organization with emphasis on the CM activities, and shall include:

a. The purpose, scope, and specific applicability of the CMP to the products or services.
b. Identification of the Contractor's CM organization, responsibilities, and relationships to the Contractor's organization.
c. Responsibility and authority for CM of all participating groups, and organizations including their role in production, configuration control boards, and technical reviews.
d. Interfaces between contractor's CM organization and NASA, subcontractors, and other contractor's/contracts.
e. Training plans
f. Process for conducting reviews (e.g. SRR, PDR, CDR, SAR, etc.)
g. Plan for providing NASA with access (electronic or otherwise) to all configuration management and engineering data.

2.0 Configuration Identification - this section shall describe the contractor's processes for Configuration Identification:

a. Selection of Configuration Items (CIs) (Hardware, Computer Software Configuration Item (CSCI's), and firmware)
b. Establishment of the functional allocated, and product baselines for hardware and software, and definition of the configuration

documentation required for each.

c. Engineering release and correlation to products.

d. Identification of design responsibility. (use of cage code)

e. Assignment and application of configuration identifiers including: document numbers, nomenclature, serial numbers, and part numbers to hardware, lot codes, software, and firmware identifiers.

f. Part marking, including marking to identify discrepant items and marking to identify flight like items that are not qualified for flight use.

3.0 Configuration Control - this section shall describe the sequence of events and milestones for implementation of CM during the contract phase in with major milestones and events including as a minimum:

a. Establishment of internal change process for development, approval, and execution of change control to product baselines.

b. Establishment of internal configuration and contractual baselines.

c. Establishment of configuration control boards and processes and how they interface and relate to the HHPD boards and panels.

d. Identification of processes to document changes

4.0 Configuration Status Accounting (CSA) **-** this section shall describe the Contractor's processes for CSA:

a. Hardware and Software CSA processes and provisions for reports and/or access to CSA data.

b. Methods for collecting, recording, processing and maintaining data necessary to provide contractual status accounting information via reports and/or data base access.

c. Description and methods of processes and tools to provide:

   i. Identification of current approved configuration documentation and configuration identifiers associated with each CI.

   ii. Status of proposed engineering changes from initiation to implementation.

   iii. Waiver/deviation status and processing.

   iv. Results of configuration audits; status and disposition of discrepancies.

   v. Traceability of changes from baselined documentation.

   vi. Effectivity and installation status of configuration changes to all CIs.

d. Methods of access to information in status accounting information systems and/or frequency of reporting and distribution.

5.0 Configuration Verification/Audits - this section shall describe the contractor's processes for Configuration Verification::

a. Processes, plans, documentation, and schedules for internal CM audits.

b. Format for reporting results of in-process configuration audits.

c. Methods used by the contractor to ensure its subcontractor(s) compliance with Configuration Management requirements.

FORMAT:

The Contractor's format is acceptable. The Configuration Management Plan shall be delivered in native format, and shall be compatible with the JSC standard software loads.

6.0 MAINTENANCE:

See Data Requirements list.

7.0 DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Export Control Plan	09/07/2014	BP-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To document the Contractor's planned approach for Export Control	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
NPR 2190.1 NASA Export Control Program NFS 1852.225-70 "Export Licenses,"	BP-05 Export Control Audit Results

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

JWI 2190.1A, JSC/Export Control Plan

SCOPE:

The Contractor shall prepare and submit an Export Control Plan to describe the Contractor's planned approach for accomplishing contract functions, while strictly adhering to export laws, regulations, and directives. The plan shall describe all Export Control activities related to the performance of contract requirements in accordance with JWI 2190.1A, JSC/Export Compliance.

B. CONTENT:

The Export Control Plan shall address Contractor processes that will provide for Export Control compliance for hardware, technical data, and software developed, or used under the HHP contract.

C. FORMAT:

The Contractor's format is acceptable. The Export Control Plan shall be delivered in native format, and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Export Control Audit Results	09/07/2014	BP-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
To provide insight into the Contractor's Export Control processes.	☒ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
NFS 1852.225-70 "Export Licenses"	BP-04 Export Control Plan

8. Preparation Information *(Include complete instructions for document preparation)*

The Contractor shall prepare the deliverables as follows:

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Audits should include a thorough examination of all Export Control processes (as outlined in the Contractor's Export Control Plan) associated with this contract, areas for improvement (if any), and corrective action plans for identified areas of improvement. Affected subcontractors are required to do their own self-audits and report the results to NASA through the contractor. Prior to audit completion, inclusion on the audit process through informal statuses to the JSC/Export Services Team, or the JSC Export Administrator is optional, and might prove useful in the success of this effort.

B. CONTENT:

a. Define your current audit processes

b. Document the export control processes audited and audit findings

Based on audit findings, the contractor/subcontractor shall include corrective action plans for any processes identified for improvements and notification of when the correction of any nonconformance has been completed.

C. FORMAT:

The Contractor's format is acceptable. The Export Control Audit Results report shall be delivered in native format, and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No**. (Procurement completes)
Patent Rights Retention	09/07/2014	BP-06	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
Identification of any subject inventions including: Information on patent applications and related filings.	☒ Technical ☒ Administrative ☒ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
NFS Clause 18-52.227-11 "Patent Rights-Retention by the Contractor (Short Form)"	

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Inventions by the Contractor as part of their performance on this Government Contract.

B. CONTENT:

1. A listing every twelve (12) months of all subject inventions required to be disclosed during the period.
2. A final report prior to close-out, of the contract listing of all subject inventions or certifying that there were none.
3. Upon request, the filing date, serial number, and title, a copy of the patent application, patent number, and issue date for any subject invention, in any country in, which the contractor has applied for patents.

C. FORMAT:

The electronic or paper version of NASA form 1679, Disclosure of Invention and New Technology (Including Software) submitted to disclose subject Invention.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Reports Required for Logistics	03/31/2014	BP-07	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
These reports are required to determine the effectiveness of the Property Management System and as indicators of the volume of logistics activity.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
	BP-08 Contractor Held Property Reporting

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The reports at B.1, B.2, and B.3 below are required when Contractor on-site storage of Government property in one location at JSC (JSC campus, Ellington Field, Sonny Carter Training Facility, White Sands Test Facility) has a total dollar value greater than or equal to $75,000 and is not reported in NASA or the Contractor's property systems.

The reports at B.4 and B.5 are required in accordance with the directions below.

B. CONTENT:

1. NASA Form 1324, Semiannual Report of Personnel Property Management Operations (also called the Semi-annual Report of Personal Property Operations, Data for Semiannual Report of Contractor Supply Operations or Data Sheet 1324).
   This semi-annual report defines the following line item data elements as of March 15 and September 15 of each year:
   a. Material Inventory Status
   b. Material Inventory Activity
   c. Material Acquisition Activity
   d. Material Receiving Activity
   e. Logistics Personnel Resources Report
   Reference: NPR 4100, NASA Materials Inventory Management Manual
   Due Dates: March 25 and September 25.

2. NASA Form 1489, Semiannual Analysis of Inventory Report (also called the Analysis of Physical Inventory Report, Data for Semiannual Report of Analysis of Fixed Inventory Assets, or Data Sheet 1489):
   a. This semi-annual report defines the following monetary data elements as of March 15 and September 15 of each year.
   b. Starting Price: Price of Receipts, Price of Issues, Ending Price.
      Note: This will be reported by each Object Class Code stocked in the storeroom. Separate reports are required for Stores, Programs and Standby stock (see the JSC Stocks Stock Catalog prefaces for a detailed explanation of these codes).
   c. Reference: NPR 4100, NASA Materials Inventory Management Manual
      Due Dates: March 25 and September 25.

3. NASA Form 1619, Physical Inventory of Materials Annual Report:
   This annual report identifies the sampling inventory actions completed by the Contractor. This report contains the following data by Object Class Code (see the JSC Stores Stock Catalog preface for a detailed explanation of these codes.)
   a. Line items and dollar value of items inventoried.
   b. Number of line items with variance.
   c. Dollar value of discrepant items, including overage, shortage, and gross discrepancies.
   d. Identify whether inventory items are stores, program, or standby stock, and also identify the staff hours and dollar value expended in accomplishing and reconciling the inventory.
   e. A brief explanation of cause, of discrepancies, and actions to minimize the chance for recurrence.

Due Date: September 25.
Note: Contractor-Acquired Material (CAM) and Government Furnished Material are to be inventoried and reported together for the purposes of this report.

4. Quarterly Report of Contractor-Acquired Material (CAM) and Low Dollar Equipment:
   This report will consist of a transfer document (DD Form 1149) that identifies CAM and non-taggable equipment under $100,000 unit cost purchased and received by the Contractor for on-site use that bypass JSC Central Receiving. This Quarterly Report consists of property delivered to Center accountability for the following:
   a. Items bought for and delivered for direct consumption on site, bypassing on-site storerooms.
   b. Items delivered to on-site storeroom(s) not for immediate consumption/use.

   Quarterly Reports are DD1149's submitted by the contractor to the Government Property Administrator on a quarterly basis to obtain JSC approval for shipments made during the previous quarter that bypassed JSC Central Receiving.
   The Quarterly Report DD1149 will consist of the following:
   a. One summary DD1149 annotated with the total number of line items and total value of the items delivered to JSC during the previous three months. That DD1149 shall have the necessary approval signature blocks to affect transfer of accountability to JSC.
   b. A list of the contractor individual DD1149 voucher numbers from the previous quarter used to deliver the property to JSC.
   c. Copies of the individual DD1149s on the list reflecting a JSC recipient signature and signature date.
      The Quarterly Report summary DD1149 will transfer accountability of these assets to JSC and may also be accompanied by requisitions, issue documents, engineering work orders (if flight material destined for a bond room), or any other similar form approved for use by the Government Property Administrator. Due Date: 15 working days after the end of the Quarter/Fiscal Year.
      The Quarterly Reporting process shall be added to the contractor's property control procedures and/or plan and approved by the cognizant Government Property Administrator.

5. Annual Report of Exchange/Sale:
   a. As defined by the NASA Property Administrator (PA). Due Date: 15 days after the end of the Government Fiscal Year if required by the Government PA.

C. FORMAT:

1. Forms for data input for the NASA Form 1324 (B.1) and 1489 (B.2) are available through JB3/Contract Property Management Branch web page under "Reporting Support". http://www6.jsc.nasa.gov/ja/jb/jb3.cfm
2. Other forms shall be completed as specified above or as specified by the Government PA.

D. MAINTENANCE:

Changes or corrections to the reports above or this DRD shall be coordinated with the cognizant Government Property Administrator.

E. DISTRIBUTION:

All reports shall be provided to the cognizant Government Property Administrator.

F. APPLICABLE DOCUMENTS:

N/A

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Financial Reporting Contractor-Held Property	08/20/2014	BP-08	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
Report NASA/Property in the Custody of Contractors on both a monthly and annual basis.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
NASA FAR Supplement Subpart 1845.7101	

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

None.

B. SUBMISSION:

a. The due date for the Monthly Property Financial Reporting submission is the 21st day after the close of the previous month, except for the month of September which is due the 15th day, beginning at the first month after contract start. Example due dates for the monthly submission are as follows:
August 21 for the month ending July 31
September 21 for the month ending August 31
October 15 for the month ending September 30

b. The due date for the Annual Property Reporting via NASA Form (NF) 1018 is October 15 reflecting data from October 1 the previous year to September 30 the current year.

c. All reports shall be submitted electronically.

C. DATA PREPARATION INFORMATION:

a. Monthly Property Financial Reports are required to be submitted using the format located at the URL referenced in the paragraph below. Monthly Financial Reports will be submitted in accordance with PIC 04-12.

b. Annual Property NF 1018 Reports shall be submitted using the NF 1018 Electronic Submission System (NESS) or other format supplied by NASA. The NF 1018 report provides annual summary-level property management and financial data on Government-furnished and contractor-acquired NASA property.

c. The NF 1018 shall be completed in accordance with NASA FAR Supplement Subpart 1845.7101 and any supplemental guidance provided by NASA.

D. CONTENT:

Monthly Property Financial Reports

a. Monthly property financial reports are required with item level supporting data. This data shall be submitted for all items with an acquisition cost of $100,000 or more, in the contractor's and its subcontractors' possession, in the following classifications: real property, equipment, special test equipment, special tooling, and agency peculiar property. Monthly reporting is not required for property in the above classifications with an acquisition cost under $100,000. Monthly data shall also be submitted for items of any acquisition cost in the classifications of materials and contract work-in-process (WIP). Itemized monthly data is required for materials and WIP line items of $100,000 and over. Summary monthly data is required for materials and WIP line items under $100,000. The monthly reports shall be electronically submitted using the Contractor-Held Asset Tracking System (CHATS) (http://nasachats.gsfc.nasa.gov/) using the format described in the CHATS User's Manual.

b. Acquisition costs shall be developed using actual costs to the greatest extent possible, especially costs directly related to fabrication such as labor and materials. Supporting documentation shall be maintained and available for all amounts reported, including any amounts developed using estimating techniques.

c. All Adjustments shall be thoroughly explained and directly related to a specific fiscal year. If the fiscal year cannot be determined, the default shall be the previous fiscal year. Adjustments to the monthly report must be coordinated with JSC Finance.

d. Work Breakdown Structure (WBS) is NOT required for Contractor Acquired Property (CAP), WIP, and any new materials acquired.

E. NF 1018 REPORTS:

a. Contractors shall report all NASA-owned property in U.S. dollars, regardless of location.

b. Negative or zero reports are required.

c. This reporting shall be completed in accordance with the NASA FAR Supplement (NFS) Subpart 1845.7101 and any supplemental guidance provided by NASA.

d. Adjustments to the 1018 shall be thoroughly explained in the 1018 Comments section and must be approved by the JSC Industrial property Officer prior to submittal of the report, after first being coordinated with the cognizant Government Property Administrator (PA).

e. Entries in Type of Deletion 20 “h. OTHER” must be explained in detail in the Comments section.

f. Entries should not be placed in Type of Deletion 20 “d” or “e” since they should be reflected in “c”.

g. The 1018 report consists of two pages; a Summary first page and a Deletions second page. Both must be accurately completed for submittal.

F. DISTRIBUTION:

a. The monthly reports shall be electronically submitted using the Contractor-Held Asset Tracking System (CHATS) (http://nasachats.gsfc.nasa.gov/) using the format described in the CHATS user’s manual.

b. NASA Form (NF) 1018 reports shall be submitted using the NF 1018 Electronic Submission System (NESS) (http://ness.gsfc.nasa.gov/) or other format supplied by NASA.

G. MAINTENANCE:

a. Revisions to the NASA Form 1018 shall be coordinated with the cognizant Government PA. Revisions to CHAT shall be coordinated with JSC Finance.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	**2. Date of current version**	**3. DRL Line Item No.**	**RFP/Contract No.** (Procurement completes)
Government Property Management Plan (PMP)	06/02/2014	BP-09	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
To describe the method of administering and controlling Government personal property.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
Federal Acquisition Regulation (FAR) 52.245-1, Government Property Clause	

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Government Property Management Plan defines the Contractor's use, maintenance, repair, protection, and preservation of Government personal property. It shall describe the Contractor's approach to receiving, handling, stocking, maintaining, protecting, issuing Government property (equipment and material) and addressing transition of required laboratory functions. The Plan should include interaction and Department/Office responsibilities. The Contractor shall submit to the delegated Government Property Administrator (GPA) detailed supplemented property procedures, which are separate from this plan, no less than 60 days after the contract start date.

B. CONTENT:

This plan shall reference those policies and procedures which are part of the Contractor's Property Management System and shall include at a minimum the following functions/outcomes:

1. Property Management
2. Acquisition of Property
3. Receipt of Government Property
    a. Receiving
    b. Identification
4. Records of Government Property
5. Physical Inventory
6. Subcontractor Control
7. Reports
8. Relief of Stewardship Responsibility and Liability
    a. Loss, theft, Damage, Destruction
    b. Consumed
    c. Delivered
    d. Contractor Inventory Disposal
    e. Abandonment of Government Property (if directed by the Government)
9. Utilizing Government Property
    a. Utilization
    b. Consumption
    c. Movement
    d. Storage
10. Maintenance
11. Property Closeout

12. Reconcile Contractor Records with NASA Financial Property Records [NASA Form 1018 and the Contractor-Held Assert Tracking System (CHATS) if applicable]

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

13. JSC-Unique Considerations (as they arise or known now)

C. FORMAT:

The Contractor's format is acceptable.

D. DISTRIBUTION:

a. Initial – Due with proposal.
b. Final – Due 30 days after contract award.

E. MAINTENANCE:

Changes to the PMP shall be incorporated by change pages or complete reissue after coordination with the Government PA.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. Re-Procurement Data Package	2. Current Version 09/17/2014	3. DRL No. BP-10	RFP/Contract No. (Procurement Completes) NNJ15522169R
4. Use ***(Define need for, intended use of, and/or anticipated results of data)*** Provides requirements for delivery to NASA of information on specific items and supporting documentation related to resource/cost information, to be used for re-procurement activities. In the event of a competitive solicitation for a follow-on effort, NASA may provide non-proprietary historical information such as weighted average composite direct labor rates and approximate seniority profiles of incumbent personnel to all interested parties in order to increase the probability of realistic pricing. The Government does not intend to disclose any contractor proprietary information.			**5. DRD Category** ☐ Technical ☒ Administrative ☐ S&MA
6. References ***(Optional)***	**7. Interrelationships** ***(e.g. with other DRDs) (Optional)***		

8. Preparation Information ***(Include complete instructions for document preparation)***

A. DATA TYPE: 2

B. SCOPE:
Resource/cost information shall be submitted in accordance with this Data Requirement Description (DRD).

C. CONTENT:
A data package shall be submitted containing the following resource/cost information. This data package is required from all contractor team members (i.e., the prime and <u>all</u> major subcontractors $20M and higher for the entire period of performance):

1. Labor Resources
   a. A list of the <u>directly charged</u> labor skills by contractor labor category, segregated by current statement of work (SOW) section, with the number of Work Year Equivalents (WYE) currently supporting each SOW section. The WYE detail shall be at the lowest SOW level for which current contract tracking is available, but no higher than at least one level below the total contract level. Ensure that WYEs counted at the lowest SOW level are not counted again at the next highest SOW level. See example provided in paragraph (d) below.

   b. The list of the <u>directly charged</u> labor skills by contractor labor category (identified in paragraph (1a) above), mapped to the Standard Labor Categories (SLCs) defined and identified in the Request for Proposal (RFP) applicable to the follow-on competition for this current contractual effort.

   c. The weighted average current straight time direct labor rate by SLC for each contractor labor category identified in either paragraph (1a) or (1b) above shall be a composite by SLC as a team. Do not combine direct charged and indirect charged averages, should the same contractor labor category apply to the contractual effort as both a direct and an indirect charge. Further, provide both the date when these wages were last adjusted for escalation by contractor labor category, and the rate of escalation applied. Also indicate whether any adjustments are projected to be made prior to contract expiration. If so, provide the anticipated date and rate of escalation and identify the contractor labor categories expected to be affected.

   d. Seniority level of all WYEs identified in paragraph (1a) above, for fringe benefit calculation purposes:
      i. Number of WYEs with 0 to 5 years of experience.
      ii. Number of WYEs with greater than 5 years and up to 10 years of experience.
      iii. Number of WYEs with greater than 10 years and up to 15 years of experience.
      iv. Number of WYEs with greater than 15 years of experience.

2. Non-Labor Resources
   a. Provide total non-labor cost incurred for the most recent 12 month period grouped by expense type (examples may include travel, training, materials, and facilities).

D. FORMAT:
Contractor's format is acceptable but must include the content listed above. An example is also provided below:

Example for Data Required per Paragraph (1a) above:

Contractor Labor Category	SOW Section	*No. of WYEs
Job Code 2746	1.0	4.25
Jr Mechanical Eng	3.0	5.25 (Not included in 3.2)
Jr Mechanical Eng	3.2	2.75 (Not Included in 3.0)
Jr Mechanical Eng	6.1.1	7.5

*A WYE is defined as the work of a work year equivalent person based on your accounting system. For example, if your accounting system dictates that a WYE constitutes 1,880 productive hours (total hours minus paid time off), then four people working 470 hours per year would make up one WYE.

Example for Data Required per Paragraph (1b) above:

Contractor Labor Category	Standard Labor Category
Job Code 2746	Business Specialist I
Jr Mechanical Eng	Engineer Level I

Example for Data Required per Paragraph (1c) above:

Contractor Labor Category	How Charged to Contract	Expense Pool or Service Center	No. of WYEs	**Direct Labor Rate	Last Escalation Date and Amount	Future Escalation Date and Amount
Job Code 2746	Direct	Not Applicable	4.25	$23.25	April 2014 (2.70%)	April 2015 (2.20%)
Jr Mechanical Eng	Direct	Not Applicable	15.5	$26.12	Same	April 2015 (2.70%)
Supplier Manager	Indirect	Proc OH Pool	1.0	$36.89	Same	None

**This is the current weighted average straight-time direct labor rate with NO BURDENS APPLIED and is NOT the contract's Section B rate table rates, if there are any.

E. SUBMISSION:
See Attachment J-2, Data Requirements List (DRL) & Data Requirements Documents (DRD). The Contractor shall provide Re-procurement Data within 30 days of a written request from the Contracting Officer. Major subcontractors are to submit the required information in a sealed envelope directly to the Government.

F. DISTRIBUTION:
See Attachment J-2, Data Requirements List (DRL) & Data Requirements Documents (DRD).

G. MAINTENANCE:
Revisions to this DRD shall be incorporated by change page or complete reissue. Revisions are subject to Contracting Officer approval.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Quality Plan	09/07/2014	SMA-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The Quality Plan is used to document the specific details of the Contractor's Quality Management System (QMS) related to off-site specific product or process.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
SAE AS9100C: Quality Management Systems-Requirements for Aviation, Space and Defense Organizations	

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

A contract specific Quality Plan shall be prepared which identifies activities performed off-site of JSC to ensure quality products and services. The Quality Plan shall be in accordance with SAE AS9100C, Quality Management Systems-Requirements for Aviation, Space and Defense Organizations.

B. CONTENT:

The Quality Plan shall address each element of the SAE AS9100 "Quality Management Systems - Requirements for Aviation, Space and Defense Organizations" in enough detail to describe how requirements will be implemented for this contract.

C. FORMAT:

The Quality Plan format shall match the elements of SAE AS9100 and shall address all quality requirements as stated in contract. The reports shall be delivered in native format and be compatible with standard JSC office software loads.

D. MAINTENANCE:

The plan shall be reviewed by the contractor annually and updated as needed or as directed by the contracting officer.

E. SUBMISSION AND DISTRIBUTION:

Submission and distribution shall be in accordance with the Data Requirements List.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Electrical, Electronic, and Electromechanical (EEE) Parts Control Plan	09/07/2014	SMA-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To define and document the Contractor's requirements, system and implementation plan for controlling the selection, acquisition, traceability, testing, handling, packaging, storage and application of EEE parts for flight and critical ground support equipment.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
1. GEIA-HB-0005-1, Program Management/Systems Engineering Guidelines for Managing the Transition to Lead-Free Electronics 2. GEIA-HB-0005-2, Technical Guidelines for Aerospace and High Performance Electronic Systems Containing Lead-Free Solder and Finishes. 3. NASA Tin and Other Metal Whisker Web-site: http://nepp.nasa.gov/whisker	SMA-05 GIDEP and NASA Advisory Problem Data Sharing and Utilization Program Documentation and Reporting

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

This DRD establishes the requirements for content, format, and maintenance of the EEE Parts Plan, which is used for controlling risk and enhancing reliability of EEE Parts used in flight and critical ground support equipment. The Contractor's plan shall implement NPD 8730.2, NASA Parts Policy, Attachment A: *Criteria to Mitigate Risks Associated with Lead-Free Solder and Surface Finishes* and use Attachment B: *Counterfeit Parts Control Plan Contents* as guidance for development of a control plan for the avoidance, detection, mitigation, disposition, control and reporting of counterfeit EEE parts.

B. CONTENT:

The contractor shall document, in an EEE Parts Control Plan, the features discussed below as a minimum. The plan shall demonstrate that the contractor has the technical expertise, documentation system and defined management roles and responsibilities to assure adequate implementation.

1. Parts Selection: The EEE Parts Control Plan shall describe a concurrent engineering process, integrated with hardware design, in which parts, materials, and packaging technology are selected for use based on their intended use considering, but not limited to, performance, environment, criticality, and mission lifetime requirements. (Information and guidance concerning parts selection is provided on the NASA Parts Selection List (NPSL), http://nepp.nasa.gov). The plan shall identify parts that are considered standard and how other (nonstandard) parts will be evaluated and approved as flight controlled.
2. Controlling Specifications: The EEE Parts Control Plan shall describe how parts shall be controlled by specifications that delineate as a minimum:
   a. Complete identification of the part
   b. Physical, environmental, and performance specifications
   c. Reliability requirements, including inspections and tests for qualification, acceptance, and lot sampling.
   d. Special handling, packaging, and storage requirements
   e. Documentation, data retention, and submittal requirements
3. Part Qualification:
   a. Parts shall be qualified to the requirements of the controlling specification. Part qualification shall demonstrate that the part meets its ratings, and that the manufacturer is using materials, processes, design, and quality controls that will produce a consistent, reliable, high quality device that is deemed suitable for the intended application.
   b. Where adequate qualification data are not available, the plan shall describe the process of qualification testing to demonstrate that the parts/meets its ratings.
   c. Parts shall be re-qualified in the event of manufacturer process changes, or when a new "lot" of qualified parts are procured and it cannot be documented that the parts manufacturer has not changed the materials, processes, equipment, or facility used to manufacture the part.
   d. The plan shall address how the contractor will maintain the documentation to support the "qualified status" of parts and the respective suppliers.
4. Design Configuration Acceptability and Control: The plan shall address how the selected parts for a design are reviewed for application and environmental suitability, how the parts quality and reliability will meet the operational performance requirements, and if the parts are being used within the specific device ratings (including the NASA de-rating policy). The selection

process, technical acceptability of devices, and application documentation and review results shall be available to NASA to support hardware design reviews, certification, acceptance reviews, problem resolutions, and ground and flight operations. Key elements are as-designed-parts lists, application stress analyses (including radiation effects), and nonstandard parts acceptability assessments.

5. Parts Procurement: The plan shall address how the contractor will select, qualify, control, and monitor parts manufactures. The plan shall address the contractor's source inspections, receiving inspection (including destructive physical analysis), and pure tin purchasing controls (tin whisker growth mitigation), counterfeit parts control plan, and stocking and handling procedures prior to and during assembly. These procedures shall address how the contractor will mitigate the procurement and any subsequent installation of parts or "lots" of parts subject obsolescence and to conditions identified in GIDEP ALERTs or NASA Advisories. This section of the plan shall ensure that the selection and use of the parts will not have an "obsolescence" issue to the greatest extent possible.
6. Radiation Effects: The parts Control Plan shall include the following requirements:
   a. It shall be shown by test or analysis that Single Event Upset (SEU) and/or total dose radiation effects will not cause EEE parts to fail or malfunction in such a manner as to cause a safety hazard or loss of a mission.
   b. EEE parts that are used to control a hazard, or subsystem that control a hazard, shall be immune to the SEU and total dose radiation environment to which they will be exposed.
7. Commercial Off-The-Shelf (COTS) hardware: The plan shall address the use of COTS hardware for which insufficient parts information is available. In these cases, parts used in COTS hardware may be qualified by environmental and accelerated life testing of a complete COTS assembly.
8. Documentation: The plan shall define the contractor's electronic (preferred) or paper documentation system, data supporting milestones and design reviews, and NASA's access to the parts electronic data base and files.

C. FORMAT:

The data shall be entered into the Design Data Management System. The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format and be compatible with standard JSC office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

1. NPD 8730.2: NASA Parts Policy
2. NPR 7120.5 (Para 4.5): NASA Program and Project Management Processes and Requirements
3. JPR 8730.1: Electrostatic Discharge Control Requirements for the Protection of Electronic Components and Assemblies
4. JSC 61360: Engineering Directorate Certified Parts Approval Process
5. SSP 30312: Electrical, Electronic, and Electromechanical (EEE) and Mechanical Parts Management and Implementation Plan for the International Space Station (ISS) Program
6. GEIA-STD-0005-1: Performance Standard for High Performance Electronic Systems Containing Lead-Free Solder
7. GEIA-STD-0005-2: Standard for Mitigating the Effects of Tin Whiskers in Aerospace and High Performance Electronics
8. SAE AS5553: Counterfeit Electronics Parts, Avoidance, Detection, Mitigation, and Disposition

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Current Version Date	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Safety and Health Plan	08/13 (replaces 01/11 version)	SMA-03	NNJ15522169R

4. Use:
Establishes Safety and Health Plan for Contractors providing support to JSC organizations

The Office of Primary Responsibility for this DRD is the JSC Safety and Test Operations Division. Any modifications to this DRD require approval from the Chief, Safety and Test Operations Division.

5. DRD Category: *(check one)*		Technical		Administrative	X	SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs) (Optional)*
OSHA CSP 03-01-003, Voluntary Protection Program (VPP): Policies and Procedures Manual JSC 17773, Instructions for Preparation of Hazard Analysis for JSC Ground Operations JPR 1700.1 JSC Safety and Health Handbook	

Frequency of Submission. **Initial submission with the proposal shall include:**
Section 1: 1.1 - 1.7; 1.9 - 1.13
Section 2: 2.1 - 2.7.1.6; 2.7.2
Section 3: All
Section 4: All

Initial Submittal is limited to 50 pages per L. 22.2

Remainder of DRD requirements shall be completed in its entirety and approved by NASA no later than 15 days before contract start. Upon NASA approval, the Contractor's Safety and Health Plan become a Contractual Requirement.

Distribution: Send copies to each of the following:

Contracting Officer (1 hard copy, 1 electronic copy)

Contracting Officer's Representative (1 electronic copy)

NS/Safety and Test Operations Division (1 electronic copy)

JSC Occupational Health Office (1 electronic copy)

JSC Emergency Preparedness Office (1 electronic copy)

After the plan is approved by NASA, the CO will retain the plan in the Contract file.

Revisions to the Plan: Review the plan annually or as directed by the CO. Update the plan to meet the latest OSHA, JSC, and VPP requirements. Provide a copy of the updated plan with the changes highlighted to the distribution list above at the start of each Contract year. If no changes are required after the annual review, notify the individuals in the distribution list in writing to that affect.

Other Deliverables: The plan must include instructions for submitting the deliverables in Table 1 below to the Government and represent contractual commitments by the Contractor to provide this information. Include copies to the Contracting Officer and Contracting Officer's Representative.

Deliverable	Frequency	DRD ¶	Comments
Identity of key safety and health personnel: • Company Physician/Occupational Injury/illness case manager • Designated Safety Official • Safety Representative • Building Fire Wardens (Roster)	Within 15 days of contract start and updated with changes	1.5	Include in plan or attachment to plan

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

Deliverable	Frequency	DRD ¶	Comments
Safety and Health Self Evaluation Report	Yearly by Sept 30	1.8	Send to Safety and Test Operations Division
Roster of Terminated Employees	Yearly, 30 days after the end of the contract year	1.9.1	Send to the Occupational Health Branch
Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS)	When you introduce a new hazardous material	1.9.2	Send to the Occupational Health Branch See JPR 1700.1, Chapters 9.1 & 9.2
Hazardous Materials Inventory	Yearly or when quantities or locations change significantly. Some products require quarterly updates	1.9.3	Send to the Occupational Health Branch See JPR 1700.1, Chapter 9.2
Data on workplace industrial hygiene exposures	15 days after receiving results	2.1.1	Send to the Occupational Health Branch Only required if corporate industrial hygiene resource are used.
Inventory of Hazardous Operations	30 days after contract start and updated as necessary	2.3	Send to Safety and Test Operations Division
Inspection results entered in Building Inspection Tracking System (BITS)	10 working days after completing inspection	2.4	
On-site close calls forwarded to JSC close call tracking system	Within 3 working days of receipt	2.6	Send to Safety and Test Operations Division Required only for contractor close call systems
Mishap reporting	Immediate and follow-up as required in JPR 1700.1	2.7.1	See Chapter 2.6 of JPR 1700.1
Lessons Learned Report	Enter data into the JSC LLDB or NASA LLIS: • Within 30 days of a triggering event; • Within 30 days of a program milestone, mishap investigation, or hazard or other engineering analysis / evaluation is completed; or • 30 days before end of contract evaluation period or 45 days before end of contract, whichever is applicable.	2.7.1.7	Database entry with 1 electronic copy to the Contracting Officer's Representative (COR)
JSC Form 288, "Accident/Incident Statistics"	Monthly by the 10th of the month	2.7.2. a	Send to JSC-Safety-Report-Submittals <JSC-Safety-Report-Submittals@mail.nasa.gov>
OSHA logs	Yearly by Feb 15 and within 30 days of contract end	2.7.2.b	Send to Safety and Test Operations Division OSHA 300 & 300A with names removed. Equivalent forms from contractor database are acceptable.
Hazards recorded in JSC Hazard Abatement Tracking System (HATS)	Within 5 working days of discovery	3.1, 3.12	Applies to hazards not corrected within 30 days
Interim and Final Abatement Plans	Within 5 working days of discovery	3.12.3	Updates for hazards entered into HATS
List of hazardous operations and processes	Submit with the plan and update as needed	3.3	

Table 1, Safety and Health Deliverables

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

Format:

1. Cover page - to include as a minimum, blocks for the signatures of Contractor's project manager and designated safety official; NASA COR; JSC Safety and Test Operations Division: JSC Occupational Health Branch: and the NASA Contracting Officer. Other signatures may be required at the discretion of the Government. Once approved by NASA, signatures will be collected and the plan placed on the contract.

2. Table of Contents. See content below.

3. Body of plan - as required. Contractor's format is acceptable but should be aligned with the elements of the content below.

4. The contractor is part of a larger program – the NASA safety program – which has other contracted employees, civil servants, and other third parties that must be protected from any hazard in the workplace wherever they arise. This includes the following:

a. Hazards associated with work done on contractual tasks.

b. Hazards that arise from non-contractual operations in the vicinity of contractor's workers.

c. Hazards that arise from contractual operations which may affect the safety and health of individuals and assets outside this contract.

5. The plan will clearly identify those resources to be provided by the Contractor and proposed resources to be provided by the Government. The contractor will make this review and supporting rationale available to the Government as part of this plan. It can be documented as a checklist or outline, inserted directly in the body of the plan, or in any format developed by the Contractor that clearly conveys the results of this review including the basis for any underlying assumptions. For further information, see the LIST OF INSTALLATION PROVIDED FACILITIES AND SERVICES provided in this RFP.

6. The plan must cover the prime contractor and all subcontractors.

Details: Address the following items in your plan:

1. MANAGEMENT LEADERSHIP AND EMPLOYEE PARTICIPATION

Management and employees work together as a team to provide a safe and healthful workplace. Management and employee synergies often must work together across contractual lines.

1.1 Policy: Provide the Contractor's safety and health compliance policy statement with the plan. Compare the Contractor's policy statement with those of NASA and OSHA and discuss any differences.

1.2 Goals and Objectives. Describe your approach to the following:

1.2.1 Specific annual safety and health goals and objectives to be met. Include innovative employee input systems and management approaches that produce a measurable rate of improvement in employee participation. These goals and objectives may or may not be quantifiable. Explain how you will evaluate your accomplishment of these goals and objectives.

1.2.2 Methods to be used, if any, to improve on the Days Away Case Rate (DACR), the Total Recordable Injury Rate (TRIR), and the total Days Away plus Restricted Duty plus Job Transfer (DART).

1.3 Management Leadership. Describe how management will demonstrate its commitment to safety and health compliance through visible management activities and fulfill its line management responsibilities for safety and health. Describe specific processes and techniques for implementation in all Contract and subcontract activities and products. Include a statement from the project manager or designated safety official indicating that the plan will be implemented as approved and that the project manager will take personal responsibility for its implementation.

1.4 Employee Involvement. Describe procedures to promote, implement, and sustain employee (non-supervisory) involvement in safety and health compliance program development, implementation and decision-making from all areas of the contract.

1.5 Assignment of Responsibility. Describe line and staff responsibilities for safety and health program implementation. Identify any other personnel or organizations that provide safety services or exercises any form of control or assurance in these areas. As a minimum, the plan will identify the following:

1.5.1 Safety Representative - identify by title, the individual who will be responsive to Center-wide safety, health and fire protection concerns and goals, and who will participate in various joint meetings, forums, and other activities related to the JSC Safety and Health program.

1.5.2 Company Physician/Occupational Injury/illness case manager - identify a point of contact who is responsible for the transfer or receipt of company medical data and who will be the primary contact for the company in the event any employee suffers a work related injury or illness by name, address, and telephone number to the JSC Clinic, mail code SD32. This will facilitate

communication of medical data to Contractor management. Promptly notify the JSC Clinic of any changes that occur in the point of contact.

1.5.3 Building Fire Wardens - provide a roster of fire wardens at the start of each Contract year (their names, telephone numbers and pagers, and mail codes). Contractor fire wardens facilitate the JSC fire safety program, including coordination of related issues with NASA facility managers and emergency planning and response officials and their representatives. Fire wardens will be trained per JPR 1700.1. Update the Roster by letter to the JSC Safety and Test Operations Division, mail code NS2, with copies to the Contracting Officer and the COR. Provide the initial letter to the Government not later than 15 days after contract start.

1.5.4 Designated Safety and Health Official - identify by title the official(s) responsible for implementation of this plan and all formal contacts with regulatory agencies and with NASA.

1.6 Provision of Authority. Describe your approach to maintain consistency of this plan throughout the life of the contract with applicable NASA and JSC requirements and contractual direction as well as applicable Federal, State, and Local regulations.

1.7 Accountability. Describe procedures for ensuring that management and employees will be held accountable for implementing their tasks in a safe, healthful, and environmentally compliant manner.

1.8 Safety and Health Program Self Evaluation. Describe your approach to safety and health program evaluation. The program evaluation consists of providing a written self-evaluation report once per year that assesses your safety and health program effectiveness during the report period. The self-evaluation shall:

a. Follow the VPP program evaluation report format found in OSHA CSP 03-01-003, Voluntary Protection Program (VPP): Policies and Procedures Manual, Appendix C, “Format for Annual Submissions”, as mandated by the cognizant OSHA regional office.

b. Assess the elements of the approved safety and health plan as a minimum.

c. Include safety and health concerns and resolutions relating to JSC operations which may have been identified during the report period.

d. Include unresolved safety and health concerns relating to JSC operations which the Contractor feels merit attention of JSC safety and health management.

e. Include action plans with schedule for periodic progress reports to the Government on a frequency agreed to by the Government and the Contractor for each problem area.

f. Establish goals and objectives of the Contractor safety and health program for the next report period.

Note: Contractors who have submitted a written self-evaluation as a VPP site may submit their original report to OSHA in lieu of writing a new self-evaluation provided that all action plans and status are updated.

Note: This self-evaluation is not the same as the Contractor performance self-evaluation but may be used for that purpose if specifically required by the contract.

1.9 Miscellaneous Deliverables. The Contractor will acknowledge the following as standing requests of the Government and to be handled as described below.

1.9.1 Roster of Terminated Employees. Identify personnel terminated by the contractor. At the contractor’s discretion, the report may include personnel changes during the previous year or cumulated for all years. Information required:

a. Date of report, Contractor identity, and Contract number.

b. For each person listed, provide name, social security number, and date of termination.

c. Name, address, and telephone number of Contractor representative to be contacted for questions or other information.

1.9.2 Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS). Prepare or deliver MSDSs/SDSs for hazardous materials brought onto Government property or included in products delivered to the Government as required in chapters 9.1 and 9.2 of JPR 1700.1.

1.9.3 Hazardous Materials Inventory. Compile an inventory report of all hazardous materials it has located on Government property quarterly as required by chapter 9.2 of JPR 1700.1, and which is within the scope of 29 CFR 1910.1200, “Hazard Communication”; and Federal Standard 313 (or FED-STD-313), “Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities”, as revised.

1.10 Government Access to Safety and Health Program Documentation. Include a statement that you will make all safety and health documentation (including relevant personnel records and medical records) available without impediment for inspection or audit to Government safety and health professionals and their representatives. Electronic access by the Government to this data is acceptable as long as Privacy Act and information security requirements are met. For the purpose of this plan, safety and health documentation includes but is not limited to: logs, records, minutes, procedures, checklists, statistics, reports, analyses, notes, or

other written or electronic document which contains in whole or in part any subject matter pertinent to safety, health, or emergency preparedness.

1.11 Review and Modification of Safety Requirements. Recognize in the plan that you may be requested to participate in reviewing and modifying safety requirements that are to be implemented by the Government. This review activity will be implemented at the direction of the COR per established contractual procedures.

1.12 Procurement. Identify procedures used to assure that procurements are reviewed for safety and health compliance considerations and that subcontracts contain appropriate safety criteria and instructions. Include authority and responsibility to assure that NASA safety requirements and tasks are clearly stated (flowed down) in subcontracts.

1.13 Certified Professional Resources. Discuss your access to certified professional resources for safety and health protection and discuss their roles in your safety and health program.

2. WORKSITE ANALYSIS

Worksite analysis identifies hazards and other safety and health threats to employees and valuable assets. As a minimum, analysis will include primarily the following: developing job hazard analyses for its employees; provisions to protect is employees from hazards in their work areas; inspections of the workplace; investigations of mishaps and close calls; and the submission of safety and health data to the Government.

2.1 ANALYSIS OF Worksite Hazards. . Describe how you will rank, process, and mitigate hazards identified by any of the techniques identified per JPR 1700.1 and ensure that all hazards on NASA property, which are immediately dangerous to life or health, are reported immediately to the Safety and Test Operations Division. For administrative contracts, this is covered by a Job Hazard Analysis for office workers. JSC recommends that the Contractor use the office job hazard analysis at http://www6.jsc.nasa.gov/safety/JHA/docs/OfficeJHA.doc to establish its office safety program. The template may be amended as need; Review the Office JHA periodically with contract personnel and update it as needed. Document and track the reviews so that each contract employee's review is fully demonstrated.

2.1.1 Hazards from nearby operations not in the Contractor's control. Describe how you will assess nearby hazardous operations for potential threats to its employees and establish controls for their mitigation.

2.2 Industrial Hygiene. Describe your industrial hygiene program and how it will be coordinated with the JSC authorities responsible for industrial hygiene at JSC-administered installations. If you use corporate resources to determine workplace exposures, provide copies of all monitoring data to JSC Occupational Health Branch within 15 days of receipt of results.

2.3 Hazard Identification. Describe the procedures and techniques to compile an inventory of hazards associated with the work to be performed on this Contract to include operations and work environments in the vicinity or in close proximity to Contract operations. Report the results to the Government in a manner suitable for inclusion in facilities baseline documentation as a permanent record of the facility. Specific techniques to be considered include:

a. Comprehensive Survey - A "wall to wall" engineering assessment of the Contractor's worksite, which includes the Government furnished facilities to be used by the contractor and the immediate vicinity in which contractual work or tasks will be performed. This assessment encompasses facilities, equipment, materials, and processes.

b. Change (Pre-use) Analysis - Typically addresses modifications in facilities, equipment, processes, and materials (including waste); and related procedures for operations and maintenance

c. Hazard Analysis - May address facilities, systems/subsystems, operations, processes, materials (including waste), and specific tasks or jobs. See JSC 17773, "Preparing of Hazard Analyses for JSC Ground Operations," for analysis contents.

2.3.1 Describe the flow of the findings of the comprehensive survey of hazards into hazard analyses and job hazard analyses and subsequently into controls such as design, operations, processes, procedures, performance standards, and training.

2.4 Inspections. Describe how you will inspect all work areas every three months, in conjunction with civil service inspections.

2.4.1 Describe administrative requirements and procedures regularly scheduled inspections of your assigned areas for hazards including coordination of findings with area supervisors, facility managers, and JSC safety and health representatives as needed. Include how you will record completion of inspections in the JSC Building Inspection Tracking System (BITS). Inspections will identify:

a. Hazards and non-conformances

b. Risk assessment to include the severity and probability of an injury, illness, property damage, or environmental damage.

c. Corrective measures or controls implemented to immediately safe the area and to eliminate or control the hazard and schedules for completion.

d. Notification to persons who may be affected by hazards that pose an imminent or significant risk to safety and health of employees, operations, or facilities.

2.4.2 Describe methods to document inspection findings and corrective actions per Chapter 3.5 of JPR 1700.1.

2.5 Protective Equipment - Describe procedures for obtaining, inspecting, and maintaining all appropriate protective equipment, as required, or reference written procedures pertaining to this subject. Include methods for keeping records.

2.6 Employee Reports of Hazards - Identify methods to encourage employee participation in JSC's Close Call Reporting System to report observed hazardous conditions and events without fear of reprisal. You may implement an internal close call reporting system provided features of JSC's closed call reporting system are adopted and on-site close call information is included in the JSC closed call tracking system and in a manner that does not unnecessarily inhibit employee participation in JSC's Close Call Reporting System.

2.7 Accident and Record Analysis

2.7.1 Mishap Reporting and Investigation. Describe your approach to mishap notification and response, reporting, investigating, and correcting negative findings that are discovered in its investigations. See NPR 8621.1 and JPR 1700.1. Include the following key items from NPR 8621.1 and JPR 1700.1 in the plan:

2.7.1.1 Mishap Notification and Response –Describe how you will ensure prompt notification of mishaps and how it will respond to such notifications. This includes notifying the Safety and Test Operations Division, the Contracting Officer, and the COR immediately under the following circumstances:

a. Fatality, hospitalization, or total or partial permanent disability to one or more persons.

b. Property damage equal to or greater than $500,000.

c. Mishaps involving NASA personnel or NASA property regardless of severity.

d. Any mission failure.

NOTE: The expectation is that employees will notify their managers as soon as possible after a mishap to allow a preliminary investigation to secure the scene, identify witnesses, and to safeguard evidence, personnel or property.

2.7.1.2 Initial Reporting – Describe how you will provide an initial report within 24 hours of the mishap containing basic information that identifies personnel injured, the property damaged or lost, and the name and contact information of the appointing official and investigator. Use NASA Form (NF) 1627 (found at http://jschandbook.jsc.nasa.gov/MishapReporting/NF1627.doc) as a guide for the initial report. This report will be required for:

a. All mishaps and "close calls" involving property damage or first aid (as defined by NPR 8621.1) which occur onsite at a JSC-administered establishment. This includes Government owned and contractor operated facilities.

b. All type A and B mishaps at contractor and third party facilities when the mishap is a direct result of work performed on the contract.

c. All type C property damage mishaps at contractor and third party facilities when the mishap is a direct result of work performed on the contract.

2.7.1.3 Preliminary Investigation. Recognize in the plan that the Government may choose to immediately initiate a preliminary investigation including taking custody of the mishap scene and the collection of witness statements as a prelude to a Government investigation. Factual evidence will be made available for the contractor's investigation at a time to be determined by the Government Investigating authority.

2.7.1.4 Interim Reporting. Describe how you will submit interim reports that bring attention to specific issues such as product safety or performance defects; procedural issues; or other items of an urgent nature requiring an immediate and timely intervention by other parties. You may use your own format for interim reports.

2.7.1.5 Mishap Investigation. Describe how you will investigate all mishaps incurred while performing contract work as required in JPR 1700.1 and NPR 8621.1. Your final report shall identify which parts of the report are proprietary for business reasons or otherwise controlled for reasons of security. The Government reserves the right to initiate release of the report as specified in NPR 8621.1.

2.7.1.6 Corrective Actions. Describe how you will provide a corrective action plan that is traceable to findings, root causes, contributing factors, and recommendations and specific assignee with estimated completion dates. Include how you will notify the Government of completion dates and changes in the schedule. Indicate actions assignable to the Government or other parties.

2.7.1.7 Lessons Learned. Describe your program for lessons learned suitable for inclusion in the JSC Lessons Learned Database per JPR 2310.1, JSC Organizational Learning Program, and consistent with the areas defined in the statement of work or the work breakdown structure. Lessons learned are intended to prevent recurrence of undesirable events and to allow NASA and its team members to capitalize to the greatest extent practical on unique successes requiring documented insight for retrieval on demand. The program shall include:

a) Program structure and management responsibility for lessons learned and program advocacy throughout the contracted effort.

b) Approach to selecting, reviewing, and validating lessons learned using contract and government assets. Lessons learned usually involve uncommon insight arising from any event or observation that will benefit from sharing with a larger community of interested parties.

c) Approach used to balance trade secret and security imperatives vice government rights in data and the need to capture lessons for publication in Government information systems and processes.

d) The dissemination of lessons learned throughout appropriate NASA programs including the retrieval and dissemination of lessons published in the JSC Lessons Learned Database and the NASA Lessons Learned Information System. Sharing lessons with other Government agencies is also expected.

e) Information on the successful use of retrieved lessons including how they were used, by whom, for what purposed, and implementation detail delivered to the Government as additional recommendations for previously published lessons.

f) Goals for your lessons learned program including schedules, scope, breadth, quality, and quantity of lessons the government can expect as delivered lessons. Appropriate metrics for identification, publication, and dissemination are highly desirable.

g) The approach to the selection of media to be used for of supporting data inclusion with each lesson learned (such as photographs, analyses, diagrams, schematics, drawings, and streamed video.)

h) Submission of Lessons Learned reports with the following content:

1. Subject - one line subject of the lesson.
2. Lesson Learned - usually one sentence that describes insight gained
3. Description of Event - narrative that describes what happened.
4. Recommendations - may be an action plan, suggestion, etc., that was adopted at event source.
5. Supporting documentation – submit as needed to augment understanding of lesson (photographs with or without pointers and text labels), illustrations, drawings, etc.)
6. Contact name and e-mail address (for follow up by Government before publication of lesson).

2.7.2 Trend Analysis – Describe your approach to performing trend analysis of data (occupational injuries and illnesses; facilities, systems, and equipment performance; maintenance findings; etc.). Discuss methods to identify and abate common causes indicated by trend analysis. In support of site-wide trend analysis to be performed by the Government, discuss method of providing the following data:

a. Accident/Incident Summary Report - Accident/Incident Summary Reports as specified on JSC Form 288, “Accident/Incident Statistics” as revised. Negative reports that include exposure hours are also required.

b. Log of Occupational Injuries/Illnesses - For each establishment on and off NASA property that performs work on this Contract, deliver, to the Government, a copy of its annual summary of occupational injuries and illnesses (OSHA 300 and OSHA 300A) as described in Title 29, Code of Federal Regulations, Subpart 1904.5 If you are exempt by regulation from maintaining and publishing such logs, data equivalent to the OSHA log is acceptable.

3. HAZARD PREVENTION AND CONTROL

Once hazards are identified, they must be eliminated or controlled to lessen the risk to personnel, facilities, and the work environment. This section builds on worksite analysis described in section 2.0 above.

3.1 Describe your approach to eliminating or controlling Identified hazards. In the multiple employer environment of the Center, certain hazards and corrective actions must be collected in a Center wide information system Hazard Abatement Tracking System (HATS) for risk management purposes.

3.2 Appropriate Controls. Discuss approach to consideration and selection of controls as described in chapters 3.2 and 3.5 of JPR 1700.1.

3.3 Hazardous Operations and Processes. Describe methods for notification of personnel when hazardous operations and processes are to be performed in their facilities or when hazardous conditions are found to exist during the course of this Contract. Use JPR 1700.1 as a guide for defining, classifying, and prioritizing hazardous operations. Determine if any hazardous process meet the criteria of 29 CFR 1910.119. If so, follow the requirements of 29 CFR 1910.119. Otherwise, use it as a guide for hazardous processes. Develop and maintain a list of hazardous operations and processes to be performed during the life of this Contract. Provide the list of hazardous operations and processes to the Government as part of the plan for review and approval.

3.3.1 Describe how you will develop a schedule to write procedures with particular emphasis on identifying the job safety steps required, before hazardous operations or processes begin. Recognize that NASA will have access on request to any Contractor data necessary to verify implementation.

3.3.2 Describe how you will identify the operations or processes that may have safety or health implications outside Contract operations. The Safety and Test Operations Division or Occupational Health Branch will provide additional instructions for further NASA management review and approval.

3.4 Written Procedures. Describe methods to assure that written procedures, which include appropriate hazard controls, are developed for all hazardous operations, including testing, maintenance, repairs, and handling of hazardous materials and hazardous waste. Include how you will ensure that procedures are readily available to personnel as required to correctly perform their duties.

3.5 Hazardous Operations Permits. Identify facilities, operations or tasks where hazardous operations permits will be required as specified in JPR 1700.1 such as confined space entry, hot work, etc and how you will adhere to established NASA JSC procedures.

3.6 Operations Involving Potential Asbestos Exposures. Describe method to assure compliance with JSC Asbestos Control Program as established in JPR 1700.1, as revised.

3.7 Operations Involving Exposures to Toxic or Unhealthful Materials. Describe how you will ensure that these operations are evaluated by the JSC Occupational Health Branch and are properly controlled as advised. Include notification of JSC Occupational Health Branch before starting any new or modified operation potentially hazardous to health.

3.8 Baseline Documentation. Discuss your responsibilities for maintaining facilities baseline documentation per Chapter 10.4 of JPR 1700.1.

3.9 Preventive Maintenance. Discuss your approach to preventive maintenance. Describe scope, frequency, and supporting rationale for your preventive maintenance program including facilities or equipment to be emphasized or de-emphasized.

3.10 Medical (Occupational Healthcare) Program. Discuss implementation of JSC's "Clinic First" policy when on site per JPR 1700.1, Chapter 3.6. Include return to work policies and the use of Government provided medical and emergency facilities for the initial treatment of occupational injuries & illnesses. Discuss your approach to Cardiopulmonary Resuscitation (CPR), Automatic External Defibrillator (AED), first aid, and, return to work policies and the use of Government provided medical and emergency facilities for the initial treatment of occupational injuries and illnesses.

3.10.1 Discuss your medical surveillance program to evaluate personnel and workplace conditions to identify specific health issues and prevent degradation of personnel health as a result of occupational exposures. The program must comply with JPR 1700.1, Chapter 3.6.

3.11. Hazard Correction and Tracking. Discuss your system for correcting and tracking safety, health, and environmental hazards with particular emphasis on integration with JSC's Hazard Abatement Process (found on line at http://www6.jsc.nasa.gov/safety/hazard/process/default.asp). (The scope is restricted to establishments at JSC, Sonny Carter Training Facility, and Ellington Field.) This includes the following:

3.11.1 Personnel Awareness of Hazards. Discuss your approach to communicate unsafe conditions and approved countermeasures to your employees, the Government, and other Contractors whose personnel may be exposed to these unsafe conditions.

3.11.2. Interim and Final Abatement Plans. Describe how you will approach interim and final abatement of hazards. Describe how you will provide data to the JSC HATS for all hazards within Contractor-occupied facilities that are not finally abated (all interim and final abatement actions completed) within 30 days of discovery. Include the use of JSC Form 1240, "JSC Notice of Safety or Health and Action Plan", or equivalent.

3.12 Disciplinary System. Describe your system for ensuring safety and health discipline in your personnel (including subcontractors). Describe your approach to modifying personnel behaviors when personnel are exhibiting unsafe and unhealthful behavior.

3.13 Emergency Preparedness. Discuss your approach to emergency preparedness and contingency planning which addresses fire, explosion, inclement weather29 CFR 1910.120 (HAZWOPER); and local, regional, and national incidents at JSC as described in JPD 1040.2, JSC Emergency Preparedness Program and JPR 1040.4, JSC Emergency Preparedness Plan. Address how you will protect employees and facilities, and how you will notify JSC emergency forces. Include your pre-planning strategies and how they will be implemented through procedures, training, drills, etc. Identify your methods and schedules to verify emergency readiness. Describe how your employees will be able to locate and be knowledgeable in appropriate emergency action plans. Discuss methods to verify emergency readiness and communicate with employees after an evacuation.

Note: As a minimum, evaluate credible potential emergencies your employees will face, which will include emergencies such as fire evacuations, weather emergencies, workplace violence. Also consider potential of emergencies from nearby operations or emergencies in other areas that your employees routinely visit.

4. SAFETY AND HEALTH TRAINING

Employees (including management and supervisors) must be trained on the responsibilities to protect themselves and the facilities and operations in which they work. The results of worksite analyses and hazard prevention and control feed the resulting training programs. Timely feedback from trainees is critical to ongoing improvement of training material and course content.

4.1 Describe your training program including identification of responsibility for training employees to assure understanding of safe work practices, hazard recognition, and appropriate responses for protective or emergency countermeasures, including training to meet Federal, State, and Local regulatory requirements.

4.2 Describe your approach to identifying training needs including traceability to exercises such as job safety analyses, performance evaluation profiles, hazard analyses, mishap investigations, trend analyses, etc. Discuss your approach to written exams (a NASA requirement) and other methods to establish trainee proficiency. Include your approach to ensure that training is retained and practiced.

4.3 Describe your approach to training personnel in the proper use and care of personal protective equipment (PPE).

4.4 Discuss tailoring of training toward specific audiences (management, supervisors, and employees) and topics (safety orientation for new hires, specific training for certain tasks or operations). Discuss methods to obtain feedback on the success of the training.

4.5 Discuss your personnel certification programs. Certifications must meet JPR 1700.1, Chapter 5.8.

4.6 Address use of JSC safety and health training resources as appropriate. If you wish to train your personnel in any regulatory mandated training, secure an agreement with JSC Safety and Test Operations Division and the Occupational Health Branch before beginning training. The agreement will ensure consistency safety and health training within JSC's multiple employer work environment.

4.7 Discuss your approach to making all training materials and training records available to NASA, and other Federal, state, and local agencies for their review upon request.

END OF DOCUMENT

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Problem Reporting and Corrective Action (PRACA) for the JSC Government Furnished Equipment (GFE) and Flight Products	09/07/2014	SMA-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To report problems and to document their subsequent resolution and approval.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-20 Non-Conformance Record TD-21 Flight Products Failure Analysis Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

Non-conformances requiring JSC/GFE PRACA reporting are defined in JSC 28035. PRACA reporting is limited to flight equipment and software, equipment that is representative of flight equipment and software (flight-like) and critical ground support equipment and software. PRACA requirements are also applicable to subcontractors that provide these products.

B. CONTENT:

1) The following data is mandatory for the initial reporting of a problem. The initial report shall be transmitted to the JSC PRACA Center within 2 business days after isolation to a configuration item, but no later than 10 business days after occurrence/detection.
   a) PRACA Number [a unique tracking number assigned to the PRACA report]
   b) Non-conformance Number [a unique local nonconformance number]
   c) Detect Date [The date (mm/dd/yyyy) non-conformance occurred or was detected]
   d) Location [The location where the non-conforming item was at, at the time of occurrence/detection]
   e) Program [The affected NASA program]
   f) Project Office [The responsible NASA Project Office (EVA, FCE, Life Sciences, and Other_____)]
   g) Contact [The technical point of contact, organization, and phone number]
   h) Report Date [Date the PRACA report was initiated]
   i) Detected During [The specific test or operation performed when the non-conformance occurred)]
   j) Title [A brief, but descriptive title for the problem]
   k) Description [A narrative description of the problem including the observed event(s) as well as the expected event(s).]
   l) Identification of the Configuration Item by:
      i. Part name
      ii. Part number
      iii. Serial number, lot number, or version
      iv. Manufacturer's name
      v. Manufacturer's Contractor and Government Entity (CAGE) code

2) The following data shall be provided when it becomes known (with the exceptions noted). This data shall be provided as updates to the initial PRACA report. This data is mandatory for the closure of the report.
   a) The end item or product (if not the configuration item), specific subassemblies, and the nonconforming article shall be identified:
      i. Part name
      ii. Part number
      iii. Serial number, lot number, or version
      iv. Manufacturer's name
      v. Manufacturer's CAGE code
   b) FMEA No. [Failure Mode and Effects Analyses number]
   c) FMEA Criticality [This data is required within 10 calendar days of opening the problem report]

d) FMEA/CIL Impact [yes or no, is the FMEA/CIL retention rationale impacted by the occurrence of this problem?]
e) Out-of-Family Problem [yes or no, based on the definitions of In-Family and Out-of-Family in JSC 28035]
f) Fracture Critical [yes or no, is the material involved fracture critical?]
g) ECD [Estimated Completion Date for submitting a final closure of the problem. This data is required within 30 calendar days of opening the problem report.]
h) Process Escape [yes or no, per the definition of process escape in JSC 28035]

3) The following data shall be provided to close the report:
   a) Final report [A final report documenting the specific information required for closure per JSC 28035, i.e. final closure with corrective action (this is preferred) or final closure without corrective action (explanation)]
   b) Approval signatures
   c) Date Approved

C. MAINTENANCE:

See Data Requirements List (DRL).

D. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

E. APPLICABLE DOCUMENTS:

a. JSC 28035, Program Problem Reporting and Corrective Action (PRACA) Requirements for the Johnson Space Center/Government Furnished Equipment (GFE).
b. SSP 30234, Failure Modes and Effects Analysis and Critical Items Requirements List for Space Station.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Government-Industry Data Exchange Program (GIDEP) and NASA Advisory Problem Data Sharing and Utilization Program Documentation and Reporting	09/07/2014	SMA-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This DRD provides the minimum information to be incorporated into the Contractor's and sub tier contractor implementation procedures and contractual data reporting requirements necessary to participate in the GIDEP and NASA Advisory Problem Data Sharing and Utilization Program.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-20 Non-Conformance Record

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

- NPR 8735.1, "Procedure for Exchanging Parts, Materials, and Safety Problem Data Utilizing the Government-Industry Data Exchange Program and NASA Advisories"
- SO300-BT-PRO-010, GIDEP Operations Manual and Policy www.gidep.org
- SO300-BU-GYD-010, GIDEP Requirements Manual

B. CONTENT:

The Contractor shall review and respond to all GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, GIDEP Agency Action Notices, and NASA Advisories issued from the JSC/NASA-Advisory/GIDEP Status Tracking System to determine if they affect the Contractor's products or services provided to NASA. If it is determined there is an impact, the Contractor shall take action to eliminate or mitigate any negative effects to an acceptable level. The Contractor shall generate the appropriate failure experience data report(s) (i.e. GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory, or NASA Advisory) whenever systemic failed or nonconforming items, available to other buyers, are discovered during the course of this contract.

The Contractor shall establish and implement procedures to comply with the SOW requirements to register with, and participate in the GIDEP in accordance with NPR 8735.1. At a minimum, these procedures shall address:

a. The Contractor and sub-tier implementation procedures that include sufficient detail to ensure the Contractor understands the importance of the task, management responsibilities, technical expertise required to identify and resolve impacts, "special problem" information sensitivity, and documentation necessary to comply with GIDEP and NASA policies. Special controls shall be implemented to ensure confidentiality of problem reports involving criminal investigations.

b. Preparation and submittal of GIDEP documents in accordance with SO300-BT-PRO-010.

c. Preparation and submittal of NASA Advisories using JSC Form (JF) 1159, JSC/NASA Advisory. Initiation of JF 1159 shall be through the JSC/NASA-Advisory/GIDEP Coordinator at jsc-jscadvco@nasa.gov. Release of NASA Advisories shall be pre-coordinated with the JSC/NASA-Advisory/GIDEP Coordinator and comply with the contents required to complete JF 1159 to accurately report the problem and conditions.

d. Task management, control, and tracking status.

e. Methodology that will be used to (1) distribute and thoroughly assess the GIDEP and NASA Advisory for impacts to assets pertaining to this contract and (2) ensure impacts noted are promptly reported, tracked and, upon direction from the Contracting Officer (CO) or Contracting Officer Representative (COR), corrected. Disposition assessments and status shall be entered into the JSC/NASA Advisory GIDEP Documents Status and Tracking System maintained by the JSC/NASA-Advisory GIDEP Coordinator and shall be made in a timely manner to support Certificate of Flight Readiness Reviews and other milestones associated with space-flight activities.

f. Tracking and reporting financial data to justify and substantiate any reported "cost impacts" in accordance with GIDEP policies.

g. Logistical tracking, tagging, segregation, and retention of suspect parts or material in the custody of the Contractor pending final disposition instructions from the CO or the COR with concurrence from the JSC/NASA-Advisory GIDEP Coordinator.

h. Identification of the Contractor's representative(s), Point of Contact for this activity, who shall interface with the JSC/ NASA-Advisory GIDEP Coordinator.

C. FORMAT:

Contractor format is acceptable with the provision that GIDEP forms/documentation shall be used in accordance with GIDEP policies and JF 1159 shall be used to report NASA Advisories.

D. MAINTENANCE:

Changes to the Contractor's procedures shall require approval by the Contracting Officer with concurrence from the JSC NASA-Advisory/GIDEP Coordinator.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Project Schedule	09/07/2014	RV-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Provide schedule information to NASA, so that interdependent program activities can be planned and critical milestones monitored.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	MGMT-03 Contract Management Report RV-02 Regular Status Report/Summary Review

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The schedule shall serve as the basis for communications between the Contractor and NASA concerning essential schedules. The detail breakdown in the schedule depends on the type of products and services requested, and will be defined in the Task/Delivery Order (TDO).

B. CONTENT:

Project schedules shall be prepared using the Critical Path Method and include a graphical representation to illustrate order and interdependence of activities and sequence of work based upon the Work Breakdown Structure in the TDO. Each activity shall include start and finish dates. The complexity shall match the nature of the products being provided. The portion of the schedule completed shall be identified. As a minimum the following detail is required:

1. Key Milestones (e.g., requirements reviews, design reviews, test readiness reviews, critical activity completion dates)
2. Key product deliveries including delivery and return from remote facilities
3. Key design activity
4. Key manufacturing activity, test activity, and significant events
5. Assembly time
6. Major external project milestones not controlled by the contractor and their relationship to the project

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The schedule shall be delivered in native format, and be compatible with Microsoft Project software.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Regular Status Report/Summary Review	09/07/2014	RV-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Provide information on the Contractor's technical, quality, financial, and delivery-to-schedule progress.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	RV-01 Project Schedule

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Regular Status Report shall contain information on the contractor's technical, quality, cost, and deliver-to-schedule performance related to the work defined in a Task/Delivery Order (TDO). A review shall be held with NASA to discuss the highlights. The frequency of submittal of the Regular Status Report shall be monthly, or as defined in the TDO.

B. CONTENT:

The contents of the report shall address all the products and services defined in the TDOs held by the contractor that are still active. The structure of the report shall be selected by the contractor and agreed upon by the COR, or their designated representative. The following shall be addressed in the report:

A. <u>Cost Performance Summary (Performance Based):</u>
   1. Project Actual-To-Date Cost & Projected Total Cost - Last Period
   2. Project Actual-To-Date Cost & Projected Total Cost - This Period
   3. Projected Total Cost Addition Due to Approved Changes
   4. Graphics Of Initial Cost Projection, Initial Cost Projection + Approved Changes Projection, Full Cost Projection
   5. Variance not due to approved change and description of cause

B. <u>Resource Performance Summary (Level-Of-Effort):</u>
   1. For the WBS reporting level requested in the TDO, the following summary is to be provided by standard labor category. Graphic of the initial planned manpower for each WBS item for the TDO, with current planned manpower, with approved changes for the project, actual manpower expended to date, and percentage of the WBS task completed.

   2. Technical & Quality Performance Status:
      a. Nominal Technical/Quality Performance Achieved
      b. Better than Nominal Technical/Quality Performance Achieved
      c. Nominal Technical/Quality Performance not Achieved
      d. Action to be taken, to resolve unachieved Nominal Performance
      e. Notice of potential failure to meet future Nominal Performance, identification of causes, along with recommendations as appropriate.
      f. Other Technical and Quality Subjects particular to the project

C. <u>Product Production and Schedule Status:</u>
   1. Overall Schedule Status
   2. Completed Products and Schedule – Projected in Last Monthly Period

3. Completed Products and Schedule - Actual This Period
4. Projected Next Month's Products, and Schedule Completion
5. Change from last month due to Approved Changes
6. Variance not due to approved change, and description of cause

D. Variance Deployed Hardware Status:
1. Open Anomalies Status (all formal reporting status)
2. Corrective Actions Status
3. Lessons Learned

E. Management:
1. Corrective Actions Taken This Period
2. Organization
3. Efficiencies Implementation
4. Impacts of External Dependencies

F. Summary Review:
1. The Summary Review shall be a presentation that contains the highlights of the report. The COR or designee, and the contractor shall agree upon the contents of the review. The Summary Review shall not address the contents of Section C above.

G. Minutes during the Summary Review shall be taken, and submitted with the Status Report.

H. Additional content as identified in the TDO.

C. FORMAT:

The report shall be provided in a business report style with a report body font size that does not exceed 12. The Summary Review shall be a viewgraph presentation compatible with Microsoft Power Point. The electronic data shall be delivered in native format, and be compatible with the JSC standard office software loads, and standard engineering software.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Project Technical Requirements Specification (PTRS)	09/07/2014	RV-03	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The PTRS defines the requirements of the HHPD, HHPD customers, Engineering Directorate, and the S&MA organization for flight products.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" SA-WI-014 "Project Management of Flight Hardware Developments"	RV-07 End Item Specification

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The PTRS contains the performance, functional, environmental, interface, criticality, maintainability, safety, and human rating requirements for the flight products. This is the formal agreement between the HHPD and Engineering Directorate and their customer(s). The Contractor shall provide all or a part of the engineering effort required to produce this record. The Contractor shall survey the multiple sources of flight product requirements, and define those that are essential for mission success.

B. CONTENT:

The PTRS shall define the minimum technical requirements, and any constraints for the flight products that apply to performance, design, operation, interoperability, reliability, maintainability and transportability. The minimum set of technical requirements shall include all functional requirements that will be used as a measure of mission performance success. A general outline of the content in a PTRS is contained in EA-WI-023 and EA-WI-025. The PTRS is the source of requirements used to develop the detailed design requirements that will be contained in the Product Specification.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Engineering Directorate Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The format for the PTRS is also described in EA-WI-023. The PTRS shall be delivered in native format, and be compatible with the JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list. This data shall be maintained in the DDMS when changes are required. This document is updated as required during the requirements definition phase. A version is presented at the Systems Requirements Review (SRR). An additional version is presented at the Preliminary Design Review. This final version is to be updated as a result of the review, and signatures obtained from the HHPD and Engineering Directorate.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Project Requirements and Verification Documentation	09/07/2014	RV-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This document is delivered instead of the Flight Hardware Project Technical Requirements Specification and the Flight Hardware Verification and Validation Plan when the Flight Products requested are simple in nature or present little risk to the crew or NASA assets.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Products" JSC 28484 "Program Requirements Document For Johnson Space Center Non-Critical Government Furnished Equipment" SA-WI-014 "Project Management of Flight Hardware Developments"	RV-03 Project Technical Requirements Specification, RV-10 Flight Products Verification and Validation Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This document defines a limited set of requirements for the flight products and the verification approach when the products are determined to not have a critical function.

B. CONTENT:

This document will contain the functionality of the separate Project Technical Requirements Specification, Verification and Validation Plan. The contents will depend on the nature of the Task/Delivery Order but will include all or some of the content described for the PRVD contained in EA-WI-023.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with the standard JSC office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Certification and Acceptance Requirements Document	09/07/2014	RV-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To record the joint JSC and flight product provider agreed upon requirements to be used for acceptance and certification of flight products.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The CARD (Certification and Acceptance Requirements Document) is a two-part document. Part one addresses hardware and, if applicable, installed software definition, verification requirements, and acceptance and certification environmental requirements. These verification requirements apply to both the design certification and the acceptance testing of flight hardware. The CARD combines the end item specification, and certification plan documents into one document. Part two is the associated Requirements Verification Matrix. The CARD is submitted for approval in the Critical Design Review time frame. Once the CARD is approved, it shall be placed under configuration control. The Requirements Verification Matrix is then used to verify, and document the hardware compliance to the established requirements. A copy of the Requirements Verification Matrix, with the column "Verification Documentation" listing the appropriate documentation (e.g. test document number, analysis document number, technical memo number, etc.), shall be completed and submitted as part of the Government Certification Acceptance Request (GCAR)/Certification Package.

B. CONTENT:

<u>Part One:</u>

a. Foreword - This includes, but not limited to, the company or organization preparing the CARD, for whom the CARD is prepared (e.g. NASA Johnson Space Center), the contract number, project sub-task order number, and any other pertinent information.
b. Abstract - Define the high-level scope of the CARD, as it relates to testing, analyses, inspections, etc.
c. Table of Contents.
d. Tables - List of tables (e.g. Requirements Verification Matrix) and the associated page numbers.
e. Figures - List of figures and the associated page number.
f. Acronyms - List the applicable acronyms and their explanation
g. Introduction - Discuss the purpose of the CARD and a description of the hardware. Include specific part numbers and dash numbers for the hardware being covered by the CARD. If available, include a line drawing of the hardware. All operational constraints for use of the hardware will be listed and explained in this section.
h. Applicable Documents - List the documents which apply to the hardware (e.g. Program level documents, interface control documents, Safety and Mission Assurance documents, etc.).
i. Requirements - List the functional and performance requirements, both general and unique, for the hardware. Also, list any exceptions to existing requirements.
j. Verification:
    1. Certification Approach - Give a brief explanation of the approach to be used for certification. This shall include, but not limited to: The Certification Rationale, describing the certification methods (e.g. assessment, analysis, test, similarity). The Certification Plan, describing the sequence of test activity, use of the Verification Matrix, the use of test

procedures, the documenting of test failures and non-compliances, etc.

2. Acceptance Approach. Give a brief explanation of the approach to be used for acceptance. This shall include, but is not limited to: The requirement for acceptance testing of parts, components, assemblies, receiving tests, etc.; the requirement for Environmental Testing; the requirement for Pre-Delivery Acceptance (PDA) testing; and the requirement for Pre-Installation Acceptance (PIA) testing.

Part Two:

This section is the Requirements Verification Matrix, in table format. This matrix shall list, but not limited to, the following information:

a. Name and part number of the hardware
b. The requirements
c. Exceptions to the requirements
d. The verification method (e.g. assessment, analysis, test, or similarity)
e. The test procedure codes (e.g. FC-Fit Check, LT-Load Test, PDA, PIA, TT-Thermal Test, etc.)
f. A comment block for special comments or explanations

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The data shall be delivered in native format, and be compatible with Microsoft Word.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Interface Control Document (ICD)	09/07/2014	RV-06	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This document defines the requirements for the interfaces between the flight products and vehicle interfaces required to make the products fully functional.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" SA-WI-014 “Project Management of Flight Hardware Developments”	TD-01 System Requirements Review (SRR) Data Package TD-02 Preliminary Design Review Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Interface Control Document (ICD) is the formal definition of the technical interfaces between products, other systems, and/or payloads and other program products. The ICD shall fully describe the quality characteristics of the interface so that the product is fully functional upon integration.

B. CONTENT:

The document is a complete description of the interface requirements and interface design details necessary to assure that the product is functional when integrated. It addresses the engineering design parameters associated with mechanical, biological, chemical, electrical, fluid, electronic, human factors, and software design.

C. FORMAT:

Depending on the nature of the flight product, multiple ICDs using different formats may be required. The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with JSC standard office software loads, and standard engineering software.

D. MAINTENANCE:

See Data Requirements list. Initial version at the Preliminary Design Review, update as required through the appropriate Flight Product configuration control processes. An up-to-date revision is required at Critical Design Reviews and a final revision is required at flight product acceptance. All revisions shall be made in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
End Item Specification	09/07/2014	RV-07	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The Product Specification or End Item Specification (EIS) defines the engineering requirements for the design, manufacture, and test of the flight product.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" SA-WI-014 "Project Management of Flight Hardware Developments"	RV-03 Project Technical Requirements Specification

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Product Specification or End Item Specification (EIS) defines the engineering requirements to be used that capture all NASA Programs, S&MA organization, and NASA Engineering requirements, and translates them into requirements for the product. The EIS shall define all technical requirements, and all constraints for the flight products (including payload) that apply to the safety, performance, design, operation, interoperability, reliability, maintainability, verifiability, and transportability of the flight products. Also, it provides technical metrics for the acceptability of the flight product.

B. CONTENT:

The Flight Products Specification contains the performance, functional, environmental, interface, maintainability, reliability and safety requirements for the flight product. All requirements contained in the Project Technical Requirements Specification are addressed, along with the detailed design constraints, requirements associated with the verification and validation approaches, and other requirements that are needed in order to meet the program level requirements.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with the JSC standard office software loads, and standard engineering software.

D. MAINTENANCE:

See Data Requirements list. Update of this document will be required frequently throughout all phases of the project. It is initially approved by NASA at the Preliminary Design Review (PDR). It may be modified after the PDR through Contractors and NASA approval. The maintenance shall be performed in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Engineering Drawings and Model Files	09/07/2014	RV-08	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide the design data used to analyze, manufacture, install, verify, operate, modify, and maintain the products delivered under this contract.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
NASA-STD-0005 NASA Configuration Management Standard EA-WI-027 Configuration Management for Government Furnished Equipment	TD-03 Critical Design Review (CDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

JPR 8500.4 Engineering Drawing Systems Manual

SCOPE:

This DRD establishes the requirements for content, format, control, and maintenance of drawings and associated model files prepared by the Contractor and/or obtained from subcontractors, or vendors for all products designed under this contract.

B. CONTENT:

The Contractor shall have the ability to submit and receive CAD generated engineering drawings including solid models, electrical/electronic schematics, software code, and printed circuit board layouts. The Contractor shall understand and participate as required in the review process that NASA follows in order to approve flight product drawings. Release of drawings through the Engineering Drawing Release System (EDRS) is considered a part of the Engineering Drawings delivery. All drawing native files, defining the as built configuration, shall be submitted with the flight products for acceptance by NASA and approval of the DD250.

C. Performance:

Performance Standard- Drawings are complete and are approved through the NASA process, after the contractor approvals have been obtained.

Acceptable performance: less than 10% of the drawings require modifications and re-submittal because they were inconsistent with JPR 8500.4.

D. Format:

All drawings shall be submitted to NASA in electronic format, with native model files to the Design Data Management System (DDMS) unless otherwise addressed in the Task/Delivery Order (TDO). The format is defined by an outline or template associated with this data that is documented in JPR 8500.4 or contained in the DDMS. The format may be varied to match the specific nature of the products being provided. Solid models shall be submitted in ProEngineer. The TDO may request an alternative format. Electrical/electronic schematics and printed circuit board layouts shall be transferred in electronic format compatible with ORCAD or Altium. The format of the drawing, shall comply with the guidelines in JPR 8500.4. Manufacturing processes shall be referenced to the appropriate specifications or industry standard (e.g. ASME, ANSI). When a contractor standard that is not available at the JSC is referenced, the full standard or process shall be provided as part of the drawing package. COTS products shall be identified by the vendor's part number, cage code (if available) and manufacturer's name and address. The parts list shall be submitted electronically in native format that is compatible with Microsoft Excel. Design Change Notices shall be submitted in native format compatible with Microsoft Word.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

E. MAINTENANCE:

See Data Requirements list. Updated as required prior to Critical Design Reviews (CDRs). All updates are submitted for approval by the appropriate configuration control board, prior to obtaining authorization after the CDR. Updates shall be maintained in DDMS.

F. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Projects Authorization to Proceed Record	09/07/2014	RV-09	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Record the completion of a major design review and authorizes the Contractor to proceed to the next milestone.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" SA-WI-014 "Project Management of Flight Hardware Developments"	

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This document provides a record that both NASA and the Contractor agree there are no major issues preventing completion of a design review milestone (Preliminary Design Reviews and Critical Design Reviews). It authorizes the Contractor to proceed to the next milestone. The Task/Delivery Order may define additional project specific milestones that require this approval.

B. CONTENT:

This document will contain the following information as a minimum:

1. Subject - Authorization to Proceed
2. Date subject document initiated
3. Name of completed milestone
4. Date of formal review
5. Open items and expected completion dates (Minor Items).
6. Example statement: "All major aspects of the xxx Design Review have been completed. Only minor open-items remain and these items will not affect cost, and schedule if resolved per the Open Item list. This document, once approved, authorizes the contractor to proceed to the next milestone."
7. Necessary approval signatures will be identified in Task/Delivery Order to include:

a. Applicable Contractor Representatives
b. NASA Safety and Mission Assurance representatives
c. NASA Engineering representatives

C. FORMAT:

The Contractor's format is acceptable. The software used to develop this document shall be compatible with Microsoft Word. The record shall be submitted to the Design Data Management System (DDMS) for routing and approvals.

D. MAINTENANCE:

See Data Requirements list. The record will be retained in the DDMS for future reference. Revisions to this record are not expected.

E. **DISTRIBUTION:** Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Verification and Validation Plan	09/07/2014	RV-10	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This plan defines the approach to verifying and validating that the flight products met the design requirements.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 Project Management of GFE Flight Projects EA-WI-025 GFE Flight Project Software and Firmware Development SA-WI-014 GFE Flight Hardware Development	RV-03 Project Technical Requirements Specification RV-07 End Item Specification SW-01 Flight Software Requirements Specification

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Verification and Validation Document (V&VD) - Plan and Results (hereafter referred to as the V&VD) defines the plan for and documents the results of the Verification and Validation (V&V) activities for the GFE Flight Project. These activities confirm that the GFE flight items comply with their specifications, function properly, and are ready for use. This V&VD includes the V&V of functional capabilities and subsystem performance through analyses using non-real-time tools, tests using real-time test facilities, inspection as it applies to the manufacturing processes used in hardware fabrication, and software generation, and demonstration as it applies to human factors, serviceability, accessibility, and transportability of system features.

B. CONTENT:

EA-WI-023 contains a definition of the objectives of the V&V Plan, and gives the generic content for the NASA to NASA System Level V&V Plan. The Contractor shall produce this plan tailored to the type and scale of work described in the Task/Delivery Order.

The Contractor should follow the V&VD annotated outline (template) as referenced in EA-WI-023. A simplified version of the outline is shown below:

1. GFE Description:
   a. Requirements Flow down
   b. Architecture
   c. End Item Architectures
   d. System X Ground Support Equipment
   e. Other Architecture Descriptions

2. Verification and Validation Process:
   a. Verification Methods
   b. Validation Methods
   c. Certification Process
   d. Acceptance Testing

3. Verification and Validation Implementation:
   a. Verification & Validation Flow
   b. Test Articles
   c. Support Equipment
   d. Facilities

4. End Item Verification and Validation
   a. Developmental/Engineering Unit Evaluations
   b. Verification Activities
   c. Validation Activities
   d. Acceptance Testing

Appendices C (Verification Matrix) and D (Validation Matrix) of the V&VD include a "Results" column for documenting the objective evidence (results) of verification activities performed during the Flight Production and Certification Phase. The first baseline of the V&VD is finalized at the CDR to establish the plan for V&V, and all columns of the appendices are completed except the "Results" column (i.e., results are To Be Supplied (TBS). During the Flight Production and Certification Phase, the planned V&V activities are performed and the "Results" column is documented (including TPS number, waiver, memo, or report, etc. as appropriate). The V&VD, with the "Results" column documented, is released with the appropriate revision number and change record information. This revised release of the V&VD, with associated "Results" documentation attached, form a part of the Certification Data Package.

C. FORMAT:

A template for the V&V Plan is contained in EA-WI-023. The template associated with this data can be accessed in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with JSC standard office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements list. The initial plan is provided at the PDR and requires NASA approval. Updates of this document will be required frequently throughout all phases of the project. At the CDR a fully developed V&V Plan is submitted and requires NASA's approval. The maintenance shall be performed on DDMS, Per EA-WI-023 and Task/Delivery Order.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL**.**

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Qualification Plan	09/07/2014	RV-11	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The Qualification Plan formally presents the approach to qualifying the first unit delivery of flight products.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 Project Management of GFE Flight Projects EA-WI-025 GFE Flight Project Software and Firmware Development SA-WI-014 "Project Management of Flight Hardware Developments"	RV-10 Flight Products Verification and Validation Plan RV-12 Flight Products Qualification Test Procedures BP-03 Configuration Management Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Qualification Plan documents the approach to qualifying flight products. It describes in detail how the processes of testing, analysis, demonstration, and inspection shall be used to certify that contracted requirements have been met.

B. CONTENT:

The Qualification Plan defines how the flight products are qualified to meet the design requirements that have applied to the flight product. Analysis, Test, Inspection, Demonstration, a combination of methods, or other methods may be used. The Qualification Plan addresses those engineering design aspects that need to be verified on the first delivery item in order to verify that a requirement has been met. This is typically performed on dedicated qualification products.

C. FORMAT:

Qualification Plan (DRD) format will vary to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with the JSC standard office software loads and standard engineering software. The report shall be submitted to the Design Data Management System (DDMS).

D. MAINTENANCE:

See Data Requirements list. This document is maintained throughout the life of the project. The initial Flight Products Qualification Plan describing the overall approach to qualifying flight products is due at contract start + 60 days. Revision is due at Critical Design Review (CDR) or as directed in the TO or DO. Revision(s) to the Flight Products Qualification Plan shall be made within the JSC DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Qualification Test Procedures	09/07/2014	RV-12	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To define all procedures and success criteria for testing new flight products or modified flight products, and to verify that the qualification unit meets design requirements.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	RV-10 Flight Products Verification and Validation Plan RV-07 End Item Specification RV-14 Flight Products Qualification Report SW-01 Flight Product Software Requirements Specification

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

JWI 8730.6 Task Performance Sheet (TPS)

SCOPE:

To document the detailed procedures used to test flight products.

B. CONTENT:

The procedures shall contain the following:

1. Identification of the specific End Item being tested
2. Detailed description of the test objective
3. Description of all relevant test equipment and facility configuration
4. Full set of procedures
5. Criteria for passing or failing each test
6. Specification of the tolerances on all operational parameters with go, no-go criteria
7. Initial Settings for all Controls, Power Supply Voltages, etc.
8. Safety hardware that is mandatory to be verified operational prior to testing, with reference to procedures used

C. FORMAT:

The format is defined by an outline or template associated with this data on the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. A Task Performance Sheet shall be used to document and control the detailed instructions needed to perform the procedure. The electronic data shall be delivered in native format, and be compatible with the JSC standard office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements list.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Acceptance Test Procedures	09/07/2014	RV-13	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To define all procedures and success criteria for testing of all flight hardware and the qualification unit in order to verify that each unit meets the expected engineering performance.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
JWI 8730.6 "Task Performance Sheet (TPS)"	RV-10 Flight Products Verification and Validation Plan RV-07 End Item Specification SW-01 Software Requirements Specification TD-04 Acceptance Data Package (ADP)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Acceptance Test Procedures document the detailed procedures used to test flight products. Complete procedures are required for acceptance of each Flight Product.

B. CONTENT:

The procedures shall contain the following:

1. Identification and configuration of the specific Flight Product being tested
2. Detailed description of the test objective
3. Description of all relevant test equipment and facility used
4. Full set of procedures
5. Criteria for passing or failing the test
6. Specification of the tolerances on all operational parameters with go and no-go criteria
7. Initial Settings for all Controls, Power Supply Voltages, etc.
8. Safety hardware that is mandatory to be verified as operational prior to testing, with reference to the procedures used

C. FORMAT:

The Acceptance Test Procedure will have no formal format. It documents the detailed instructions needed to write detailed procedures on a Task Performance Sheet (TPS). This data shall be delivered to the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with the JSC standard office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements list. The record is maintained throughout the life of the products. The data will be retained in the DDMS for reference.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Product Qualification Report	09/07/2014	RV-14	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Records the results of the qualification process. This record is used to complete a portion of the overall verification of the flight product. It is modified through the life of the flight products as configuration changes are made that require additional qualification or repeated qualification.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Products" EA-WI-025 GFE Flight Project Software and Firmware Development SA-WI-014 "Project Management of Flight Hardware Developments"	RV-10 Flight Products Verification and Validation Plan RV-11 Qualification Plan TD-15 EEE Parts List and Analysis Report RV-12 Flight Hardware Qualification Test Procedures

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This report records the results of qualification testing, analysis, inspections, and demonstrations used to verify the design and performance of flight products. This report addresses all objectives defined in the Qualification Plan.

B. CONTENT:

The Qualification Report contains all records used to verify that the flight products met all the requirements that were allocated to the qualification process in the Verification and Validation Plan. It contains the qualification test results, the analysis results, analytical models necessary to produce the analysis, record of the results of demonstrations, and results of inspections that are performed initially when hardware is first delivered.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The data shall be delivered in native format compatible with standard JSC software loads.

D. MAINTENANCE:

See Data Requirements list. The Qualification Report is updated every time a configuration change is made that would have affected the qualification process had it been a part of the original design. Additional qualification testing, analysis, inspection and demonstration will be required. A change record is maintained as part of the document. All updates and change records shall be maintained in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Requirements	09/07/2014	SW-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Documents the functional, performance, and interface requirements that are to be met by the software flight products.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-025 GFE Flight Project Software and Firmware Development NPR 7150.2 NASA Software Engineering Requirements	SW-02 Software Development Plan RV-03 Project Technical Requirements Specification RV-06 Interface Control Document

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This specification documents the functional, performance, and interface requirements for software used in flight products, and establish a requirement baseline prior to detailed design and production. This document also serves as the record for requirements changes throughout the life cycle of the project. Software requirements are defined from the Project Technical Requirements Specification (PTRS), the End Item Specification, the Certification and Acceptance Requirements Document, and the Interface Control Document.

B. CONTENT:

This specification defines the detailed functional, performance and interface requirements and implementation constraints for the software required to command, control, or monitor flight products. This specification will maintain a trace from the PTRS to the Software Requirements Specification (SRS). Unique identifiers will be used to designate safety-critical software requirements.

C. FORMAT:

The template of the SRS described in EA-WI-025 shall be used. This template is retained in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with the JSC standard office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements list. The first submittal of the SRS is at the Preliminary Design Review and is approved by NASA. The document is updated as changes are approved throughout all phases of the project. A version is reviewed again at Critical Design Review and approved again by NASA. This data shall be maintained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Development Plan	09/07/2014	SW-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The Software Development Plan defines the contractor's approach to software acquisition, development, certification, assurance, verification, and delivery.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-018, Use of Off-the-Shelf Software in Flight Projects Work Instruction (cont in # 8).	

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

References:

a. EA-WI-025 GFE Flight Project Software and Firmware Development
b. EA-WI-027 Configuration Management, Engineering Directorate
c. NPR 7150.2 NASA Software Engineering Requirements
d. NASA-STD-8739.8 Software Assurance Standard

SCOPE:

The Software Development Plan documents the Contractor's planned approach to software acquisition, development, assurance, certification, verification, delivery, and operational utilization. It describes the software management approach, and the implementation of quality assurance throughout the effort. It defines how the project will meet the NPR 7150.2 development requirements.

B. CONTENT:

The plan shall address the approach for controlling the configuration of the software after the Critical Design Review (CDR), and shall be compatible with Engineering's Configuration Management processes defined in EA-WI-027. It shall address the compatibility of the Contractor's products with the products required by NASA that are described in the Software Development Plan (SDP) outline provided in EA-WI-025. The plan shall also describe the Contractor's use of Off-The-Self (COTS) software, which is compatible with Engineering process EA-WI-018

C. FORMAT:

A template for the Software Development Plan is described in EA-WI-025. The template associated with this data is contained in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. The initial Software Development Plan describing the overall approach to software acquisition, development, assurance, certification, verification, delivery, and operational utilization is due at contract start + 60 days. Revision is due at the System Requirements Review (SRR) or as directed in the TO or DO. Revision(s) to the Software Development Plan shall be maintained within the JSC DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Design Documents	09/07/2014	SW-03	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The purpose of the Software Design Document is to describe the design of the software and firmware that implements the software requirements.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-025 GFE Flight Project Software and Firmware Development EA-WI-018 Use of Off-the Shelf Software in Flight Projects	TD-02 PDR Data Package SW-01 Software Requirements Specification TD-03 CDR Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This document describes the design of the software in sufficient detail that could be understood and modified by another knowledgeable programmer other than the developer. The Software Design Document defines the "how" of the software requirements. This document describes the rationale for the selected design.

B. CONTENT:

a. Software structure
b. Module definitions, functions, and operations
c. Algorithms
d. High-level interface descriptions
e. Threads of control
f. Decomposition into compilation and code units
g. Design of the Interfaces
h. Consideration given to the changes that may be required during flight operation by non-programmers
i. Mapping between the logical or functional design of the software, and its detailed design units

C. FORMAT:

A template for this data is presented in EA-WI-025. This template is retained in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. Per EA-WI-025 and Task/Delivery Order**.** As used throughout this document, the term software refers to both software and firmware.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Code	09/07/2014	SW-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Record the lines of code in developed software, or the set up files and data for commercial software.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-027 Configuration Management Requirements EA-WI-025 GFE Flight Project Software and Firmware Development	SW-03 Flight Products Software Design Document

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Software, like hardware, is an essential element of flight product performance. This data records all information necessary to produce the software. (See EA-WI-025)

B. CONTENT:

Software code includes all source code files, header files, make file/build scripts, data files, and software components such as software modules (functions, classes, objects, CSUs, etc.), execution processes (processes, threads, rate groups, modes, etc.), or other data items (structures, shared memory pools, etc.) necessary to compile, build and run a properly working program.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with the operating system and platform that it operates on. Native Format is ASCII test file except for the case where a data file needs to be in binary format, in order to comply with industry standards (JPEG, MPEG, etc.).

D. MAINTENANCE:

See Data Requirements list. Software code shall be placed under configuration control at the CDR, after delivery to the JSC Design Data Management System (DDMS). Throughout the life of a project, it can be expected that software will undergo multiple configuration changes. These changes shall be made within the DDMS system.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Assurance Plan	09/07/2014	SW-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Software assurance planning is used to document the software activities to be performed during the life cycle phases.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-06 Certification Data Package (CDP) SMA-04 Problem Reporting and Corrective Action (PRACA)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

NPR 7150.2, NASA Software Engineering Requirements
NASA-STD-2202-93, Software Formal Inspections
NASA-STD-8719.13, Software Safety
NASA-STD-8739.8, Software Assurance

SCOPE:

Software Assurance includes: Quality Assurance, Quality Engineering, Verification and Validation, Non-conformance Reporting and Corrective Action, Safety Assurance, Software Reliability and Security Assurance. Software Assurance activities are conducted during the software development life cycle. The phases of the software development life cycle are:

a. Concept and Initiation Phase
b. Requirements Phase
c. Design Phase
d. Implementation Phase
e. Integration and Test Phase
f. Acceptance and Delivery Phase
g. Operations/Maintenance Phase

Definitions:

Software Quality Assurance applies to all software developed for NASA, including:

a. Deliverable software,
b. Software included as part of deliverable hardware (including firmware),
c. Non-deliverable software (Commercially available or user-developed) used for development, fabrication, manufacturing process control, testing, or acceptance of deliverable software or hardware (test and acceptance software, software design, test, and analysis tools; compilers, etc.)
d. Commercially available (COTS), reused, or Government Furnished Software (GFS)

B. CONTENT:

The Contractor shall provide a Software Assurance Plan in accordance NASA-STD-8739.8, Section 6.3. The Software Assurance Plan shall identify the software assurance approval authority responsible for the establishment, and composition of all software baselines, and any changes to the baseline.

C. FORMAT:

The Contractor's format. Deliver data in the Engineering Directorate Design Data Management System (DDMS) in native format

compatible with JSC standard software loads.

D. MAINTENANCE:

See Data Requirements list. Review annually at a minimum. Any updates shall be maintained in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Test Description	09/07/2014	SW-06	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To describe the test preparations, test cases, and test procedures to be used to perform qualification testing of a Computer Software Configuration Item (CSCI) or a software system or subsystem.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
NPR 7150.2 "NASA Software Engineering Requirements," Section 5.2.6, and EA-WI-025 "GFE Flight Project Software and Firmware Development."	TD-02 Preliminary Design Review (PDR) Data Package RV-10 Flight Products Verification and Validation Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Software Test Description describes the test preparations, test cases, and test procedures to be used to perform qualification testing of a CSCI or a software system or subsystem.

B. CONTENT:

In accordance with the NPR 7150.2 NASA Software Engineering Requirements, the Software Test Description shall include:

a. Test preparations, including hardware and software
b. Test procedures, including:
   1. Test identifier
   2. System or CSCI requirements addressed by the test case
   3. Prerequisite conditions
   4. Test input
   5. Instructions for conducting procedure
   6. Expected test results, including criteria for evaluating results, and assumptions and constraints
   7. Test pass/fail criteria
   8. Requirements traceability
   9. Identification of test configuration

C. FORMAT:

The format and content of the SRS described in EA-WI-025 shall be provided unless specified otherwise in the DO. The Contractor's format shall be approved by the Task/Delivery Order Manager. The product shall be in a Microsoft Office compatible format.

D. MAINTENANCE:

See Data Requirements list. Per EA-WI-025 and Task/Delivery Order.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Software Test Plan	09/07/2014	SW-07	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To develop, record, and assess plans for conducting computer software component level testing, software integration testing, software qualification testing, and system qualification testing of a software system.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
NPR 7150.2 "NASA Software Engineering Requirements," EA-WI-025 "GFE Flight Project Software and Firmware Development"	TD-02 Preliminary Design Review (PDR) Data Package RV-10 Flight Products Verification and Validation Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The Software Test Plan describes the plans for software component level testing, software integration testing, software qualification testing, and system qualification testing of software systems. The plan describes the software test environment to be used for testing, identifies the tests to be performed, and provides schedules for environment, development, and test activities. The plan provides an overview of software testing, test schedules, and test management procedures.

B. CONTENT:

In accordance with the NPR 7150.2 NASA Software Engineering Requirements, the Software Test Plan shall include:

1. Test levels
2. Test types (e.g., unit testing, software integration testing, systems integration testing, end-to-end testing, acceptance testing, and regression testing)
3. Test classes
4. General test conditions
5. Test progression
6. Data recording, reduction, and analysis
7. Test coverage (breadth and depth) or other methods for ensuring sufficiency of testing
8. Planned tests, including items and their identifiers
9. Test schedules
10. Requirements traceability (or verification matrix), showing bi-directional traceability to requirements and design
11. Qualification testing environment, site, personnel, and participating organizations
12. Identification of testing requirements that drive software design decisions, e.g., special system level timing requirements/checkpoint restart

C. FORMAT:

The format and content of the SRS described in EA-WI-025 shall be provided unless specified otherwise in the DO. The Contractor's format shall be approved by the Task/Delivery Order Manager. The product shall be in a Microsoft Office compatible format.

D. MAINTENANCE:

See Data Requirements list. Per EA-WI-025 and Task/Delivery Order.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Version Description Document (Software and /or Firmware)	09/07/2014	SW-08	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To identify and describe a software version consisting of one or more CSCIs (including any open source software). The description is used to release, track, and control software versions.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
None	TD-04 Acceptance Data Package (ADP) TD-06 Certification Data Package (CDP)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

NPR 7150.2 "NASA Software Engineering Requirements"
EA-WI-025 "GFE Flight Project Software and Firmware Development"

SCOPE:

The Version Description Document identifies and describes a software version consisting of one or more CSCIs (including any open source software). The description is used to release, track, and control software versions.

B. CONTENT:

Per EA-WI-025 and Version Description Document (VDD) template

C. FORMAT:

The format and content of the VDD described in EA-WI-025 shall be provided unless specified otherwise in the DO. The product shall be in a Microsoft Office compatible format.

D. MAINTENANCE:

See Data Requirements list. Per EA-WI-025 and Task/Delivery Order.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Systems Requirements Review (SRR) Data Package	09/07/2014	TD-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This data package provides objective evidence that a complete set of requirements have been identified.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" SA-WI-014 "Project Management of Flight Hardware Developments"	Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

JSC-STD-8080 JSC Design and Procedural Standards

SCOPE:

This design review establishes the requirements from the Engineering Directorate's customer organization, the Engineering Directorate, the S&MA Directorate, and supporting organizations for the flight products. The review scope includes: hardware, software, and associated ground support equipment. This data package provides the NASA review team evidence that the essential requirements needed for flight hardware performance success have been identified.

B. CONTENT:

A SRR Data Package includes up-to-date engineering information defined by other DRDs listed below, SRR specific data, other data defined in the Task/Delivery Order, and a presentation package used for the SRR review. The presentation materials shall include the following:

1. Product (system, component, payload) description, major elements, expected performance
2. Project Deliverables
3. Constraints and Guidelines
4. Top Level Qualification Approach
5. Validation & Verification process
6. Specific material requested in the Task/Delivery Order

The following latest versions of these documents are to be provided:

1. Interface Control Documents (DRD-RV-06)
2. Software Development Plan (DRD-SW-02)
3. Project Technical Requirements Specification (DRD-RV-03)

C. PERFORMANCE:

Acceptable Schedule Performance: Acceptable schedule performance is defined as delivery of complete data products for distribution in the DDMS 2 weeks prior to the review. The data shall be approved by contractor designated personnel prior to delivery.

Unacceptable Schedule Performance: The data products are delivered late or are sufficiently incomplete as to cause a delay in the Requirements Review.

Acceptable Content Performance: The data package contains products that are accepted by the government with only minor

modifications required. Minor modification means that all issues with the content controllable by the contractor can be resolved within 1 month of the review.

Unacceptable Content Performance: One or more major issue has occurred that is attributed to the contractor. The issue(s) are so significant that a delta SRR is required by the Review Chairperson.

D. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

E. MAINTENANCE:

See Data Requirements list. The SRR Data Package is updated by adding the copy of the Review Item Dispositions (RIDs). The package shall be retained for the Project as a quality record of the SRR in the JSC DDMS. Modifications to deliverables required by approved RIDs shall be made when appropriate to do so for each of the documents. The updated documents are not considered a part of the SRR package.

F. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Preliminary Design Review (PDR) Data Package	09/07/2014	TD-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This data package contains the early engineering, safety, quality and project documentation to be reviewed by the NASA customer and their designated support in order to assure that the Contractor's intended products meet the requirements for safety, cost, performance, and schedule.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Products" SA-WI-014 "Project Management of Flight Hardware Developments"	Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The contractor is required to develop engineering data and to deliver the products required for the Preliminary Design Review data package described by EA-WI-023 and defined by the content below:

B. CONTENT:

a. End Item Specification DRD RV-07
b. Interface Control Documents DRD RV-06
c. Preliminary Engineering Drawings (Represents 10% of all drawings that would be required.)
d. Software Requirements Specification DRD SW-01
e. Software Design Document DRD SW-03
f. Phase I Risk Assessment Executive Summary Report (RAESR) and supporting safety documentation DRD TD-19
g. Flight Products Verification and Validation Plan DRD RV-10 (Project Requirement and Verification Document for non-critical products RV-04)
h. Preliminary EEE Parts List and Analysis DRD TD-15
i. Flight Products Workmanship Specifications List DRD TD-14
j. Contractor unique Workmanship Specifications
k. Summary of Waivers/Deviations Requested or approved waivers
l. Engineering Analysis DRD TD-08
m. Summary PDR Presentation (See EA-WI-023 for sample content)
n. Change Requests for Cost Efficiency
o. Project Cost Projection (to submit for NASA only review)
p. Other data specified in the Task/Delivery Order
q. PDR minutes

C. PERFORMANCE

Acceptable Content Performance: The data package contains products that are accepted by the government with only minor modifications required. Minor modification means that all issues with the content controllable by the contractor can be resolved within 1 month of the review.

Unacceptable Content Performance: One or more major issue has occurred that is attributed to the contractor. The issue(s) are so significant that a delta PDR is required by the Review Chairperson.

Acceptable Schedule Performance: Acceptable schedule performance is defined as delivery of complete data products for distribution in the DDMS 2 weeks prior to the review. The data shall be approved by contractor designated personnel prior to delivery.

Unacceptable Schedule Performance: Unacceptable performance is defined as failure to deliver products for distribution 2 weeks prior to the review or distribution of significantly incomplete products that require delay in the PDR review.

D. FORMAT

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format, and be compatible with JSC standard office software.
The Project Cost Projection shall be provided to the Contracting Officer Technical Representative (COTR) or designee in a native format that is compatible with JSC standard office software. The Project Cost Projection shall be additionally submitted on permanent CD.

E. MAINTENANCE:

See Data Requirements list. The PDR Data Package is a one time delivery. The PDR package shall be appended by the minutes and RIDs from this review and any additional data submitted during the review. Modifications to drawings or documents as a result of the RIDS are not considered a part of the PDR Data Package. The RIDs serves as documentation of the agreements made during the review. A complete copy of the PDR Data Package shall be maintained as a project quality record in the DDMS for the life of the product.

F. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Product Critical Design Review (CDR) Data Package	09/07/2014	TD-03	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This data package contains the mature engineering, safety, quality and project documentation to be reviewed by the NASA customer and their designated support in order to assure that the contractor's intended products meet the requirements for safety, cost, performance and schedule.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
Ref: EA-WI-023 "Project Management of GFE Flight Projects" SA-WI-014 “Project Management of Flight Hardware Developments”	Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Deliver the products required for a Critical Design Review (CDR) data package as described in EA-WI-023. Content that is not required will be defined in the Task/Delivery Order.

B. CONTENT:

a. Summary of the PDR Review Items Disposition that had actions to be completed by or prior to the CDR.
b. End-Item Specification, DRD RV-07
c. Interface Control Documents, DRD RV-06
d. Engineering Drawings, DRD RV-08 (90% of final drawings)
e. Software Design Document, DRD SW-03
f. Phase II Risk Assessment Executive Summary Report (RAESR) and supporting safety documentation, DRD TD-19
g. Flight Products Verification and Validation Plan, DRD RV-10 (Project Requirement and Verification Document for non-critical GFE)
h. EEE Parts List and Analysis Report, DRD TD-15
i. TD-16 Space Station Hardware FMEA and CIL
j. Limited Life Items List, DRD TD-05
k. Flight Products Workmanship Specifications List, DRD TD-14
l. Contractor unique Workmanship Specifications
m. Summary of Waivers/Deviations Requested
n. Engineering Analysis, DRD TD-08
o. Plan for the User's Guide
p. Summary Presentation (See EA-WI-023 for content)
q. CDR Minutes

C. PERFORMANCE

Acceptable Content Performance: The data package contains products that are accepted by the government with only minor modifications required. Minor modification means that all issues with the content controllable by the contractor can be resolved within 1 month of the review.

Unacceptable Content Performance: One or more major issue has occurred that is attributed to the contractor. The issue(s) are so significant that a delta CDR is required by the Review Chairperson.

Acceptable Schedule Performance: Acceptable schedule performance is defined as delivery of complete data products for distribution in the DDMS 2 weeks prior to the review. The data shall be approved by contractor designated personnel prior to delivery.

Unacceptable Schedule Performance: Unacceptable performance is defined as failure to deliver products for distribution 2 weeks prior to the review or distribution of significantly incomplete products that require delay in the CDR review.

D. FORMAT:

The format of each data deliverable above that is a DRD is to be delivered in the format specified in that DRD. The format of the summary presentation and the other data shall be defined by the Contractor after consideration of the content for this presentation described in EA-WI-023. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format. The native file shall be compatible with the JSC standard office software (e.g., Microsoft's Power Point or Microsoft's Word.)

E. MAINTENANCE:

See Data Requirements list. The CDR Data Package is a one-time delivery. The package shall be appended by the Review Items created during this review.

F. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Acceptance Data Package (ADP)	09/07/2014	TD-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
The ADP is a collection of documents that define the current status of flight products at the time of acceptance by NASA technical and quality representatives. The ADP contains a complete record of data deliverables that show that the product meets the engineering, and quality requirements for flight.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 Project Management of GFE Flight Projects EA-WI-025 GFE Flight Project Software and Firmware Development SA-WI-014 "Project Management of Flight Hardware Developments"	TD-07 Flight Product User's Guide TD-05 Limited Life Items List TD09 Flight Products Verification and Validation Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

SSP 30695 Acceptance Data Package (ADP) Requirements Specifications

SCOPE:

The ADP is the collection of documentation that provides information that established a complete status of the certified and verified deliverable flight products or support products for flight products as described in EA-WI-023 and EA-WI-025. It provides documentation of the "as-built" configuration. An ADP shall be submitted with shipment/transfer of each flight hardware/software product.

B. CONTENT:

The information required in a specific ADP is dependent on the nature of the products to be provided. The need for, and the content of the ADP shall be determined by the review team at the PDR or shall be specified at the start of a project. Items which may be contained in the ADP are given below.

a. Description of product defining all functions and current approved design specifications
b. Waivers/deviations
c. Unexplained Anomalies
d. List of Shortages
e. Unplanned/Deferred Work
f. Pre-planned Assigned Work
g. Product Historical Log/notes/comments
h. Identification -As-Designed List, As-Built List
i. Operating Life Time/Operational Cycle
j. Age-Sensitive/Time-Action Items or Limited Life Items
k. Non-Standard Calibration Record
l. Repair Limitations
m. Pressure Vessel Data, including pressure cycle data (if certification limited)
n. Non-Flight Hardware Temporary Installation (e.g. caps for shipping which are removed before flight)
o. Materials Safety Data Sheets
p. Engineering Drawing Model Files (e.g., assembly level drawings)
q. Software Model Files /Firmware Version Description Files (see EA-WI-025)
r. Special instructions to maintain safety and functionality of the GFE during storage, handling, maintenance and disposal
s. Certifications and references to supporting records including qualification test procedures, certification analysis, vendor data, justifications for variances from vendor specifications, certification inspections procedures for all design requirements and acceptance requirements. (Include all numbers such as acceptance test procedures (ATP) numbers and ATP report numbers)
    1) A specific section shall address Energy Storage Products. A Log of all devices with corresponding references to

certification records shall accompany the copies of certifications.

2) A specific section shall address Hazardous chemicals and materials. A log of hazardous chemical and materials with corresponding references to certification records shall accompany the copies of the certifications.

t. Users Guide or Systems Operating Manual for products
u. Prepared Form DD 250 for first time delivery or copy of DD250 that was already approved. NASA accepts that the products and supporting information that is provided. This is the record that the contracted obligation for the flight products was accepted by the COR. Signing the DD250 transfers responsibility from the Contractor to NASA. A copy of the signed DD250 is provided to the Contractor for their records
v. DD 1149 for second and subsequent deliveries of products that NASA already owns
w. Vendor Specification, Maintenance, and User Documentation for all primarily COTS or modified COTS items used
x. Revision sheet for listing updates to the document.

C. FORMAT:

The format depends on the program being supported. For the International Space Station (ISS), the Contractor shall be consistent with SSP 30695. The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. The data package is maintained throughout the life of the product as additional product data is generated in order to retain a record of the current status. This quality record is retained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Limited Life Items List	09/07/2014	TD-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This data will provide the necessary information and definitions to consistently and clearly identify limited life components to maintain flight products in a use ready condition. This information permits operations, logistics, and maintenance organizations, to plan for the timely removal and replacement of hardware identified with limited life, so as to ensure continuation of proper operation.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
SSP 30234, Failure Modes and Effects Analysis and Critical Items Requirements List for Space Station	TD-03 Flight Product Critical Design Review (CDR) Data Package TD-04 Acceptance Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Limited life includes limited shelf life, limited operating life, time-action control sensitive (including maintenance activities), or a combination of these.

B. CONTENT:

At a minimum, the following data shall be provided:

A. Deliverable items:

1. Name
2. Part Number
3. Serial number
4. Contractor and Government Entity (CAGE) codes (all parts)
5. Life limiting parameter, material, or function (including analyses)
6. Restrictions or limitations on refurbishments
7. Mean Time Between Failures (MTBF) (only for items identified as criticality 1, 1R, or 2 per SSP 30234)
8. MTBF units (e.g. hours)

B. For deliverable items that are, or contain, operating time/cycle sensitive items, this additional data shall be provided:

1. Time/cycle item part name
2. Time/cycle item part number
3. Time/cycle item part serial number
4. Time/cycle item part CAGE codes (all parts)
5. Specification requirement (allowable time/cycles)
6. Remaining time/cycles from point of delivery

C. For deliverable items which are, or contain, age-sensitive/time-action items, these additional data shall be provided:

1. Age-sensitive/time-action item part number
2. Age-sensitive/time-action item part serial/lot number
3. Age-sensitive/time-action item part CAGE codes (all parts)
4. Age-sensitive/time-action item part birth date

5. Age-sensitive/time-action item part expiration date (action due date)
6. Type of action required (i.e., replace, service, inspect, etc.)
7. Last operation and/or servicing date (time-action items only)
8. Next operation and/or servicing date (time-action items only)

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The data shall be delivered in native format, and be compatible with Microsoft Word.

D. MAINTENANCE:

See Data Requirements list. Update as required. For multiple flight product deliveries, analyses are not required for deliveries subsequent to the initial delivery, unless there is a change. This data shall be maintained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Certification Data Package	09/07/2014	TD-06	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide objective evidence to NASA that the flight product meets the requirements. The certification data package, when approved, is the NASA certification.	☒ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	See DRDs identified in item 8 below

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

EA-WI-023 Project Management of GFE Flight Projects
EA-WI-025 GFE Flight Project Software and Firmware Development
SA-WI-014 Project Management of Flight Hardware Developments

SCOPE:

The Certification Data Package contains all data needed to determine, that the item or product meets design and safety requirements.

B. CONTENT:

a. GCAR (JSC form 1296) (See JSC form 1296A for additional information and instructions) TD-13
b. Flight Products Verification and Validation Plan with Verification Matrix RV-10
c. Flight Products Verification and Validation Report TD-09 (includes the verification matrix with requirements mapped to verification data)
   1. Flight Products Qualification Report RV-14
      a. Engineering Analysis Reports TD-08. Stress, thermal, EEE Parts Stress/De-rating, structural, off-gassing, flammability, toxicological, others specific to the product.
      b. Qualification Test Reports TD-11
      c. Manufacturer's Data used for a verification of hazard control
      d. Materials Certification
      e. Fracture Control Report and Materials Usage Agreement
      f. Certification Compliance Matrix, JSC-STD-8080 Compliance Matrix, and SSP 50021 Compliance Matrix
   2. Acceptance Report for Qualification Unit or first flight unit
   3. List of Approved Operational Controls
   4. Structural Integrity Verification Plan
   5. Verification Tracking Log (VTL)
   6. Inspections reports
   7. Demonstrations reports

d. Risk Assessment Executive Summary Report (RAESR) (FMEA and hazard analysis) TD-19
e. Waivers, deviations and NCRs
f. Discrepancy Reports and Problem Closure Reports Relevant to Certification
g. Limited Life Items List TD-05

h. Engineering Drawings RV-08 (not required if drawings are available in DDMS)
i. Current Project Technical Requirements Specification or Original PTRS with All Approved Changes that affect the content of the PTRS RV-03
j. Assessment of Criticality (JF1380)
k. Software / Firmware Version Description Document (VDD) [see EA-WI-025]

C. FORMAT:

The format of the items in this list, are defined by the forms defined in EA-WI-023, Table 7.5.3-1 or the associated DRD. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. The data shall be maintained in the DDMS and shall be updated to incorporate certification data for configuration changes.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Product User's Guide	09/07/2014	TD-07	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide all necessary information on how the flight product or ground support product is to be operated, serviced and maintained.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Products" EA-WI-025 "GFE Flight Project Software and Firmware Development" SA-WI-014 "Project Management of Flight Hardware Developments"	TD-04 Acceptance Data Package (ADP)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The User's Guide is a compilation of information that is required for the user to operate, service, and maintain the hardware and software, without assistance from the providing contractor.

B. CONTENT:

The guide shall define procedures that assure safe and efficient handling of the hardware and software. It shall identify hazards that may be encountered throughout the procedures, along with all controls for the hazard.

C. FORMAT:

The User's Guide may contain text, graphics, video, or photographic content. The Contractor shall use the Contractor's formats for the written portions of the guide. Those portions of the guide that may be used by the flight crew shall have a flight crew representative assessment of the final product, and corrections made prior to final submittal. Electronic graphical procedures shall be provided in ProE format. A suggested format for software can be found in EA-WI-025 "GFE Flight Project Software and Firmware Development." The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads and standard engineering software.

D. MAINTENANCE:

See Data Requirements list. The User's Guide shall be updated as required by configuration change to the products or the product interfaces. Flight crew experiences when using the guide and corrections of technical content may be some of the sources for updates. The User Guide shall be maintained on the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Engineering Analysis	09/07/2014	TD-08	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Engineering analysis is performed to provide design facts that are used as part of the 1st item certification, certification of design changes, and certification of existing designs that are used beyond original certification limits. Analysis is relied upon to assure safety, predict performance, and to understand failures.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" EA-WI-025 “GFE Flight Project Software and Firmware Development” SA-WI-014 “Project Management of Flight Hardware Developments”	TD-02 PDR Data Package TD-03 CDR Data Package TD-06 Certification Data Package TD-19 Risk Assessment Executive Summary (RAESR)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Engineering analysis to be performed at all stages throughout a project as defined in EA-WI-023 and EA-WI-025. Analysis can be explicitly identified in a Task/Delivery Order or implicitly identified by requiring whole projects or phases of project as defined in the work instructions.

B. CONTENT:

Engineering analysis required for design, performance prediction, and off-nominal assessment will be required. Some types of analysis that are frequently required in complex flight products are:

1. Process Performance, and Control
2. Stress and fracture control
3. Thermal Stress Analysis
4. Electromagnetic Effects
5. EEE Parts Stress and de-rating
6. Operational life
7. Systems Integration and Off-Nominal Performance
8. Stored Energy Impact and Isolation
9. Materials Compatibility [off-gassing, corrosion, flammability, toxicity, performance, life]
10. Software Classification Assessment, Form JF 1704
11. Code Assessment and peer reviews
12. Software Timing Analysis
13. Safety [Hazard, Operability, Ground Handling]
14. Failure Modes and Effects Analysis
15. Failure Investigation Analysis
16. Reliability Analysis

The analysis performed and report shall include a description of the assumptions made, sufficient technical details that analysis experts in the specific technical discipline can understand to determine the adequacy of the analysis, and a description of the system, both hardware and software.

C. FORMAT:

Format for reporting will be specified in the Task/Delivery Order. If a specific format is not requested, the contractor's format is to be used. The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads and standard engineering software. Analysis performed on flight products that are configuration controlled shall be referenced to the configuration of the product.

D. MAINTENANCE:

See Data Requirements list. Analyses may need to be performed as a result of design changes or changes in the intended use of hardware or software. The need for revisions to analyses and amendments to analysis reports can be expected throughout the duration of the Task/Delivery Order. All revisions of analysis reports shall be maintained on the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Verification and Validation Report	09/07/2014	TD-09	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Provides the Verification Matrix from the V&V Plan with links to the information that supports the requirements have been met. Provides a complete record of the detailed assessments from testing, analysis, demonstration, and inspection.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 "Project Management of GFE Flight Projects" EA-WI-025 "GFE Flight Project Software and Firmware Development" SA-WI-014 "Project Management of Flight Hardware Developments"	SW-03 Software Design Document SW-04 Software Code RV-08 Engineering Drawings and Model Files RV-10 Flight Product V&V Plan RV-14 Flight Products Qualification Report TD-04 Acceptance Data Package TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This report consists of all the Verification and Validation (V&V) data provided to confirm that the flight products comply with their specifications, function properly in the complete integrated environment with other actual flight hardware products, and are ready for use in flight.

B. CONTENT:

EA-WI-023 describes the broad objectives of the V&V Plan. This plan provides the detail for the four methods used to satisfy verification requirements: 1) inspection, 2) analysis, 3) demonstration, and 4) test, or a combination of these. The configuration of the products being verified and validated at the time of performance of the verification activity shall be recorded in this report. It includes the reference to the data record that demonstrates that the requirement has been met or includes the data if it has not been formally reported.

C. FORMAT:

Configuration of the flight products are documented using Engineering Drawings (DRD RV-08), Software Code (DRD SW-04) and Flight Software Design Documents (SW-03). Engineering Analysis uses the format defined in the Engineering Analysis DRD (TD-08). The V&V Report shall contain the Qualification Report (RV-14) and Acceptance Data Package (TD-04) for an example product. The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered in native format compatible with JSC standard office software loads and standard engineering software. The report shall be submitted to the Design Data Management System (DDMS).

D. MAINTENANCE:

See Data Requirements list. The initial report is provided at qualification or 1st flight unit completion. The V&V report is completed at the Systems Acceptance Review. Maintenance of the report shall continue through the life of the product as configuration is changed or anomalies occur that require additional V&V activity. Maintenance shall be performed in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Space Station Reliability and Maintainability Predictions Report	09/07/2014	TD-10	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To status quantitative R&M characteristics of Space Station functions, capabilities, and equipment.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-16 Space Station Hardware Failure Modes Effects and Analysis (FMEA) and Critical Items List

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

SSP 30234, Failure Modes and Effects Analysis and Critical Items Requirements List for Space Station.

SCOPE:

The report shall consist of the Reliability and Maintainability predictions for Space Station flight hardware for:

1. Components failure rate data for end items.
2. Mean Maintenance Crew hours per Year (MMCH/Y) predictions, for on-orbit maintainable equipment, as required
3. Quantitative status of R&M characteristics of Space Station functions, capabilities, equipment, and Failure Detection, Isolation, and Recovery (FDIR) assessment data.

B. CONTENT:

The report shall consist of three volumes, as follows. Each volume may be submitted and approved independently. The volumes may be further subdivided according to subsystem architecture and/or end items, as appropriate.

<u>Volume I:</u>

1. General and programmatic information.
2. Top-level ground rules and assumptions used in performing the R&M analyses.

<u>Volume II:</u>

1. R&M source data in accordance with Table 1.
2. Failure Detection Isolation and Recovery Assessment Information (see Table 2).
3. Perform Preventative Maintenance Assessment per decision matrix (see Figure 1).

<u>Volume III:</u>

FMEA/CIL summary information per SSP 30234, including summary tables (index), list of critical items, and identification of incomplete design areas.

<u>NEED DATE or MILESTONE REQUIRING R&M PREDICTIONS REPORTS SUPPORT</u>:
The R&M Predictions Report data requirements applies to all flight hardware and must be assessable in the JSC Design Data Management System (DDMS) 7 days prior to the PDR or the CDR that covers the first flight deployment of the hardware.
The data provided for the PDR may be preliminary data. If the initial submittal is preliminary data, final data must be provided to support a subsequent CDR.

D684-10061-01 Revision C

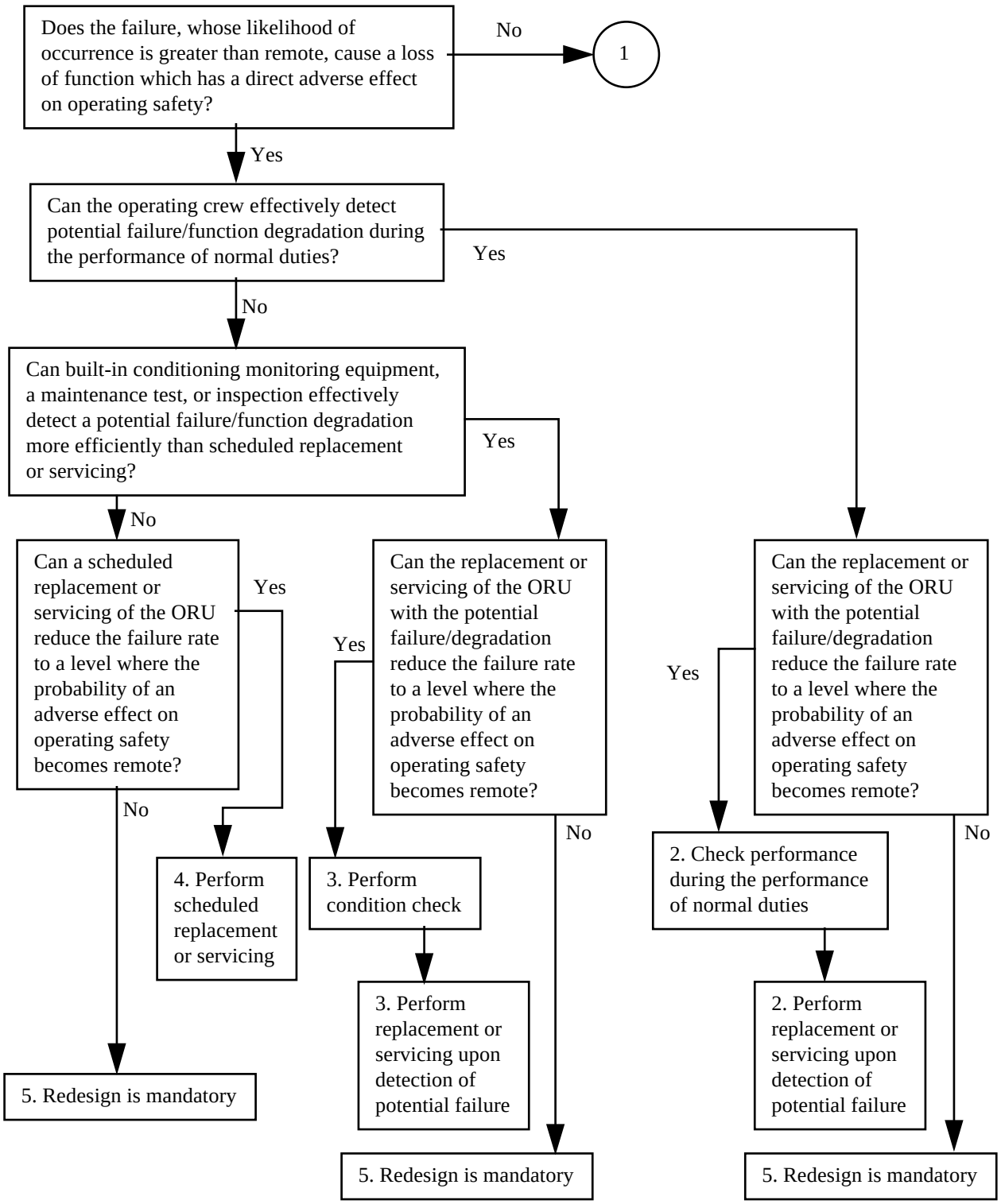

Figure 1 Preventive Maintenance Decision Matrix

D684-10061-01 Revision C

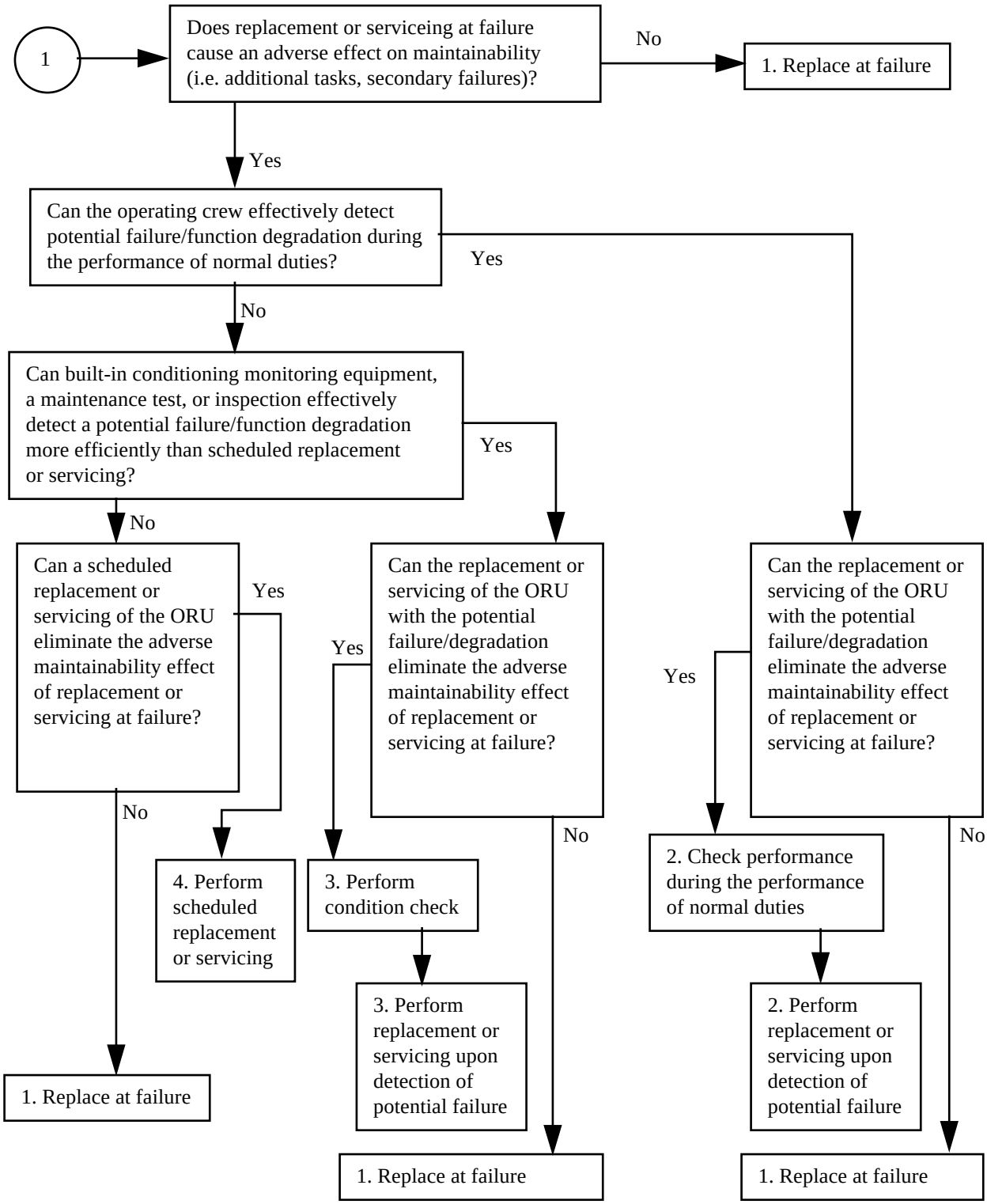

Figure 2 Preventive Maintenance Decision Matrix - Continued

TABLE 1: R&M SOURCE DATA FIELD DEFINITION TABLE

DESCRIPTION:

A. Item Name - R&M attributes shall be entered for each item which is to be maintained on-orbit. The Vehicle Master Data Base (VMDB) nomenclature shall be used for all R&M reporting. R&M is not responsible to develop the Item Name but shall use it as a reference for reporting R&M parameters.

B. Drawing/Part Number - R&M attributes shall be referenced to the Drawing/Part number in the VMDB. R&M is not responsible to develop the Drawing/Part number but shall use it as a reference for reporting R&M parameters.

F. Reliability Class - Reliability classification. The six reliability class codes are as follows:

CODE DESCRIPTION:

1. Electronic - equipment that primarily contains digital or low power analog electronics. Moving parts are high power electrical equipment that normally constitutes less than 5% of the item failure rate in the classification. Electronic type will typically have a fairly high level of Built-In-Testing (BIT).

2. Electrical - equipment that performs electrical power distribution, power storage, signal distribution, and/or radio frequency radiation functions. Moving parts or low power electronics normally constitute less than 5% of the item failure rate in this classification. Electrical types will typically have a low level of BIT.

3. Electro-Mechanical - equipment that contains electrical/electronic and mechanical parts, including devices which use electrical power to produce mechanical motion, and devices which use mechanical motion to produce electrical power or signals. Electro - Mechanical items should contain more than 5% electrical/electronic and more than 5% mechanical parts by failure rate contribution in this classification.

4. Mechanical - equipment that primarily consists of moving parts, fluid handling equipment (including thermal systems), and or seals. High power electrical equipment or low power electronics normally constitute less than 5% of the failure rate in this classification.

5. Structural with Crew Contact - equipment that is primarily structural but encounters planned crew contact or provide equipment protection. This type specifically includes doors, covers, panels, hatches, micro meteoroid/debris shields, and thermal blankets.

6. Structural with no crew Contact - equipment that is load bearing. Moving parts, electronics, and electrical equipment normally constitute less than 5% of the failure rate in this classification. Structural items should not normally encounter planned crew contact.

G. **IVA/EVA/Robotics Code** - The code which describes the level of robotic compatibility of the equipment. The codes are as follows:

CODE DESCRIPTION:

0 - Equipment located in pressurized area.
1 - Equipment can be maintained only by the EVA crew member. No robotic support is required or intended.
2 - Equipment can be maintained using SPDM without EVA. Equipment is SPDM compatible. Compatibility consists of equipment to SPDM interface. EVA can provide maintenance support in a backup role.
3 - Equipment can be maintained using SSRMS without EVA. Equipment is SSRMS compatible. Compatibility consists of Equipment to SSRMS interface. Equipment must be equipped with SSRMS grapple fixture. EVA can provide maintenance support in a backup role.
4 - Equipment requires combined SPDM/EVA operations for maintenance.

5 - Equipment requires EVA crew member to be positioned on SSRMS for access to the worksite. Equipment requires no robotic compatibility.

6 - Equipment requires the Mobile Servicing System/SSRMS for transportation to the EVA worksite. Dimensions or mass of equipment to be replaced, are not compatible with EVA/CETA translation. Equipment must be equipped with SSRMS grapple fixture.

J. MTBF - Mean Time Between Failures ("Hot" or "operating" MTBF). The estimated average time in hours between failures due to random effects under nominal operating conditions at the maintainable equipment level. Redundancy within the maintainable equipment item which is not necessary to meet failure tolerance requirements (e.g., component redundancy used for reducing maintenance demand) shall be modeled so as to improve the reported MTBF. Worst case estimates shall not be used. Failures of components that are used only during installation or removal (such as deployment motors and mechanisms) shall be excluded where maintenance would not be caused by the components failure. Failures of components that cause degradation of the equipment within the specified limit shall also be excluded. For complex items having components operating at different duty cycles, the operating MTBF may be adjusted to a duty cycle of 1.0. MTBF does not include failures due to Micrometeoroid/Orbital Debris (MM/OD).

K. Deleted

L. Wear out Life - Expected time to failure (in calendar years at the stated average duty cycles) due to wear-out, degradation, or fatigue conditions in the absence of random failures, for age or cycle life limited items. Wear out life should be used as an estimate of characteristic life (L Char) in the algorithms (Table 3). Best available data and engineering judgment should be used to estimate wear out life as the time when 63 percent of a population, would have failed due to wear-out/aging conditions alone. Minimum design life shall not be reported as the wear-out life. No life limit should be reported if the expected wear out life is 20 years or greater.

M. MTBPM - Removal/Replacement - Mean Time Between Preventive Maintenance for Removal & Replacement - The average time in calendar hours between all preventive maintenance (PM) replacements. Care should be given when determining if preventive maintenance replacements should be performed in place of waiting until maintenance is required due to gradual performance degradation and eventual wear-out (life limits).

N. MTBPM - Inspect/Service - Mean Time Between Preventive Maintenance for Inspection - The average time between PM inspections and/or servicing expressed in calendar hours. A single MTBPM - Inspect/Service parameter shall be developed for any equipment items requiring multiple servicing and/or inspection actions.

Q. CM IVA MTTR - Mean Time to Repair - Nominal elapsed IVA crew hours at the worksite. The MTTR includes remove, replace and fault detection time. Computed for zero-g using task standards. In situations where developer does not control elemental task time enter N/A as the task time.

R. Detection Percentage - Percentage of ORU failure modes detected by BIT or other diagnostic techniques.

TABLE 2: FAILURE DETECTION DATA DEFINITION TABLE

Description:

Function - Identify the function supported by the ORU.

ORU - Identify the ORU associated with the failure mode code.

Failure Mode Code - Reference the failure mode code for each ORU as identified in the FMEA.

Cat/Critical Hazard < 24 Hours (Y/N) - May a critical or catastrophic hazard occur in less than 24-hours as a result of the failure mode (Yes or No).

Detection - A/M/N - Specify whether Automatic, Manual or No detection is provided for the failure mode.

Detection - Failure Signature Algorithms - Describe the algorithm (including sensor/system states) used to detect the failure mode.

Detection - SRS/LSAR Reference - Provided a reference to the SRS that documents automatic detection, and/or the LSAR that documents manual detection procedures.

Safe: A/M/N - Specify whether Automatic, Manual or No on-orbit safing is provided for the failure mode.

Safe: Algorithms - Describe the algorithm (including sensor/system states) used to safe a hazard that results from the failure mode.

Safe: SRS/LSAR Reference - Provided a reference to the SRS that documents automatic safing, and/or the LSAR that documents manual safing procedures.

TABLE 3: R&M Source Data Format To Be Entered Into the ISS Program Vehicle Master Database (VMDB)

Input Col. #	Input Column Name
1	Part Number
2	Mfg. Cage Code
3	Maintainability Serial Number
4	Failure Mode Code
5	Maint. Item Name
6	Maint. Distrib. System Name
7	Maint. Subsystem Name
8	Maint. ORU Function
9	Maint. ORU Des.
10	Maint. Location
11	Maint. Quantity
12	Reliability Class Code
13	Robotics Code
14	Avg. Duty Cycle Prior AC
15	Avg. Duty Cycle After AC
16	MTBF Hot
17	MTBF Cold
18	MTBCF
19	Wear out Life Amount
20	MTBPM RR
21	MTBPM IS
22	CM EVA MTTR
23	CM EVA Crew Size
24	CM IVA MTTR
25	CM IVA Crew Size
26	CM EVR MTTR
27	PM RR EVA MTTR
28	PM RR EVA Crew Size
29	PM RR IVA MTTR
30	PM RR IVA Crew Size
31	PM RR EVR MTTR
32	PM IS EVA MTTR
33	PM IS EVA Crew Size
34	PM IS IVA MTTR
35	PM IS IVA Crew Size
36	PM IS EVR MTTR
37	Manifest Flight
38	Activation Flight

39	EVA RMAT Overhead Code
40	EVR RMAT Overhead Code
41	IVA RMAT Overhead Code
42	EVA Total Maint. Crew Time
43	IVA Total Maint. Crew Time
44	EVR Total Maint. Crew Time
45	Total Maint. Actions
46	Auto 24 Des.
47	Crit. Hazard 24 Hr. Des.
48	Criticality Code
49	Detection Automation Code
50	Detection Algorithm
51	Detection SRS LSAR Ref
52	Isolation Ambiguity Level Mnt.
53	Isolation Automation Code
54	Isolation Algorithm Mnt.
55	Isolation SRS LSAR Ref Mnt.
56	Isolation Automation Code Reco
57	Isolation Algorithm Reco
58	Isolation SRS LSAR Ref Reco
59	Recovery Automation Code
60	Recovery Algorithm
61	Recovery SRS LSAR Ref
62	Safe Automation Code
63	Safe Algorithm
64	Safe SRS LSAR Ref

C. FORMAT:

See R&M Source Data field definitions in Table 1. R&M Source Data shall be submitted in an electronic table (see Table 3) compatible with Microsoft Word. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See R&M Source Data field definitions in Table 1. Bi-annual, based on utilization of preventive maintenance updates. Updates shall be made in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Test Report	09/07/2014	TD-11	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Creates record and results of test performed.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-024 General Operating Procedures for EA Testing Facilities	RV-10 Flight Product Verification and Validation Plan RV-14 Flight Product Qualification Report TD-04 Acceptance Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This report consists of test data analysis and results.

B. CONTENT:

Test report shall be provided and consistent with EA-WI-024 and include as a minimum:

1. Customer name
2. Customer organization
3. Customer phone number
4. Task Performance Sheet number
5. Test objective
6. Test article part numbers and serial numbers.
7. Test date (consistent with EA-WI-024)
8. Test assessment or analysis if required
9. Test facility hardware configuration
10. Test facility software configuration (if applicable)
11. Test results

C. FORMAT:

The contractor's format is acceptable. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Delivery and Acceptance Report	09/07/2014	TD-12	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide a record of data delivered to non DDMS NASA systems.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This document serves as a formal record reflecting the Contractor's generation and delivery of native format products within the NASA specific electronic environment (non-DDMS). The Delivery/Acceptance Report shall serve as the basis for Contractor communication with NASA documenting the contractual delivery of products required by the respective Task/Delivery Order. NASA approval of the Delivery/Acceptance Report constitutes NASA acceptance of the products.

B. CONTENT:

The Delivery/Acceptance Report shall include as a minimum the following:

1. List of the products delivered to the NASA specific electronic environment
2. Associated Task/Delivery Order number and title related to each delivered product
3. Period of time being reported within the deliverable

C. FORMAT:

The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Government Certification Approval Request (GCAR)	09/07/2014	TD-13	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To establish the joint JSC and product provider agreed upon, requirements to be used for acceptance and certification of flight products.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-19, Risk Assessment Executive Summary Report (RAESR) TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The GCAR is a form that documents the certification information for a product and establishes formal approval of the successful completion of certification and acceptance.

B. CONTENT:

See the GCAR form JF 1296 and JF 1296A (instructions) for content.

C. FORMAT:

The format is defined by JF 1296. The format is available in the Design Data Management System (DDMS). The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. As required to capture changes to certification. This data shall be maintained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Workmanship Specification List	09/07/2014	TD-14	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This document defines the list of workmanship specifications that the Contractor identifies to be used for the manufacturing of the flight, and associated ground support products.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
NASA Technical Standards Program, http://standards.nasa.gov	TD-02 Preliminary Design Review (PDR) Data Package TD-03 Critical Design Review (CDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This list contains all applicable workmanship specifications that are applied as fabrication requirements or software development requirements. This list establishes the lowest-level of requirements to be met in order to assure quality products are delivered for flight.

B. CONTENT:

This list is presented for NASA review and approval. Many workmanship specifications are identified by NASA, and if used, shall provide acceptable flight products. These may be standard industry specifications, military specifications, or NASA unique specifications. Use of alternate specifications requires review and approval for assurance that the Project requirements can be met. Alternate specifications and standards shall not include proprietary processes unless approved specifically by NASA.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The list shall be delivered in native format, and be compatible with Microsoft Excel.

D. MAINTENANCE:

See Data Requirements list. The initial submittal is at the PDR. This list can be modified in DDMS by the Contractor as required with NASA approval.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Electrical, Electronic, and Electromechanical (EEE) Parts List and Analysis Report	09/07/2014	TD-15	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Report to document the analysis used to verify that the selected electrical parts are not overstressed in worst case environments, operating conditions, and duty cycles.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
SSP 30312 Electrical, Electronic, and Electromechanical (EEE) and Mechanical Parts Management and Implementation Plan for the International Space Station (ISS) Program.	Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: None

SCOPE:

The Contractor shall deliver an EEE parts list and all, or a part of the products required for EEE Parts Analysis. This report documents the analysis used to verify the appropriate de-rating and stress considerations of EEE parts selected to meet the full functional performance when used within a system operation under all environmental conditions, after worst case impacts of manufacturing, assembly, and handling processes. This analysis is also used for system reliability predictions and trends for operation problems.

B. CONTENT:

TD-02 Preliminary Design Review (PDR) Data Package
TD-03 Critical Design Review (CDR) Data Package
TD-04 Acceptance Data Package (ADP)
TD-06 Certification Data Package

Analysis for all parts in the EEE Parts, As-Designed Parts List and the bill of materials associated with the complete product. After manufacture, the report shall be updated by including all changes identified in the EEE Parts, As-Built Parts List.
This report shall include:

1. Analysis of the worst case electrical, mechanical, and high and low temperature thermal stresses by parts from purchase through manufacturing to their use in the intended application.
2. Data verifying that the analysis includes applicable de-rating requirements.
3. Electrical drawing with input/output functions (signals, sources, loads and frequencies).
4. Environmental and mechanical conditions placed on the hardware
5. Analysis to define the environmental and mechanical conditions if required, because of the placement of the hardware relative to other influencing hardware.
6. Tabulation of the worst-case stress ratios for the parameters contained in the programs parts de-rating requirements. The tabulation is referenced to designators on the drawings. It identifies the part number, parameters to be verified, device's parametric rating, parameter's worst case calculated induced stress level, specific application, and ratio of the calculated stress level to device rating for the parameter.
7. A separate section that identifies any parts that were accepted for use that did not meet the defined de-rating requirements. The rational for acceptance of their use and the NASA approval document reference shall be recorded here.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. This document is modified whenever the hardware configuration is changed sufficiently to require additional analysis. This data shall be maintained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Space Station Hardware Failure Modes Effects and Analysis (FMEA) and Critical Items List (CIL)	09/07/2014	TD-16	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*	
The FMEA provides for identification of failure modes, effects, and critical items to support risk assessment, additional design action, safety analysis, hardware/software interface analyses, test planning, mission planning, preparation of mandatory inspection points, fault detection and isolation, maintainability analyses and planning, maintenance planning, and logistics planning. The CIL is used to identify critical items that require special risk assessments, and waivers to Program requirements.	☐ ☐ ☒	Technical Administrative SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-03 Critical Design Review (CDR) Data Package TD-18 Space Station Hazard Reports TD-19 Risk Assessment Executive Summary Report TD-10 Space Station Reliability and Maintainability Predictions Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

SSP 30234 Failure Modes and Effects Analysis and Critical Items Requirements List for Space Station
SSP 50835 ISS Pressurized Volume Hardware Common Interface Requirements Document

SCOPE:

FMEA/CILs shall be documented for flight products, Ground Support Equipment (GSE), and flight support equipment (FSE).

B. CONTENT:

The flight hardware FMEA/CIL worksheets shall be prepared in accordance with SSP 30234. Information supporting the FMEA/CIL (summary tables, ground-rules and assumptions, reliability block diagrams, incomplete design areas) will be part of the Risk Assessment Executive Summary Report.

Note: This DRD also applies to GSE required to support the flight hardware.

C. FORMAT:

Product format is defined in Appendix A of SSP 30234. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

Appendix A

FAILURE MODE EFFECTS ANALYSIS/CRITICAL ITEMS LIST

FMEA NUMBER:	**ORIGINATOR**	**PROJECT:**
PART NAME:	**LRUPART NUMBER:**	**QUANTITY:**
PART NUMBER:	**LRU/ORU PART NAME:**	**SYSTEM:**
LSC CONTROL NO:	**DRAWING/REF DESIGNATOR:**	**SUBSYSTEM:**
ZONE/LOCATION:	**EFFECTIVITY/AFFECT STAGE:**	

CRITICALITY:

CRITICAL ITEM?

CRITICALITY CATEGORY____

REDUNDANCY SCREEN:

ORBITER/SPACE STATION

A -
B -
C -
D.-

FUNCTION:

FAILURE MODE CODE:
FAILURE MODE:

CAUSE:

FAILURE DETECTION:

REMAINING PATHS: **EFFECT/ MISSION PHASE:**

_CORRECTIVE ACTION:

-FAILURE EFFECTS-

END ITEM/LRU/ORU/ASSEMBLY:

SUBSYSTEM/NEXT ASSEMBLY/INTERFACE:

SYSTEM/END ITEM/MISSION:

CREW/VEHICLE:

FAILURE MODE EFFECTS ANALYSIS/CRITICAL ITEMS LIST

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

FMEA NUMBER:	**ORIGINATOR**	**PROJECT:**
PART NAME:	**LRUPART NUMBER:**	**QUANTITY:**
PART NUMBER:	**LRU/ORU PART NAME:**	**SYSTEM:**
LSC CONTROL NO:	**DRAWING/REF DESIGNATOR:**	**SUBSYSTEM:**
ZONE/LOCATION:	**EFFECTIVITY/AFFECT STAGE:**	

HAZARD INFORMATION:

HAZARD: YES___ NO__

HAZARD ORGANIZATION CODE:

HAZARD NUMBER:

TIME TO EFFECT:
TIME TO DETECT:
TIME TO CORRECT:
FAILURE DETECTION/FLIGHT:

REMARKS:

-RATIONALE FOR ACCEPTABILITY-

(A) DESIGN:

(B) TEST:

(C) INSPECTION:

(D) FAILURE HISTORY:

(E) OPERATIONAL USE:

(F) MAINTAINABILITY:

PREPARED BY:	**REVISION:**
DATE:	**WAIVER NUMBER**

JSC Form 2341 (Rev October 19, 2011) (MS Word 2007) (Previous editions are obsolete.)

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Space Station Payload Safety Data Package	09/07/2014	TD-17	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
This DRD defines the payload safety review process and data required to assist the ISS Payload Organizations in documenting compliance with the payload safety requirements	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-03 Critical Design Review (CDR) Data Package TD-18 Space Station Hazard Reports

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

NSTS/ISS 13830 Payload Safety Review and Data Submittal Requirements.

SCOPE:

This DRD is applicable to ISS Payloads.

B. CONTENT:

The Contractor shall submit Safety Data Packages (Phases 0-III) and other supporting documentation as required by NSTS/ISS 13830.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. This data shall be maintained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Space Station Hazard Reports (HRs)	09/07/2014	TD-18	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
HR's are used to document the safety analyses performed on a system, subsystem, or operation. The HR is the output of the hazard analyses and is used to provide program management a summary of risk in terms of criticality, cause, control, and verification.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
	TD-19 Risk Assessment Executive Summary Report (RAESR) TD-06 Certification Data Package TD-16 Space Station Hardware FMEA and CIL

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

SSP 30599, Safety Review Process
SSP 50021, Safety Requirements Document
SSP 50835, ISS Pressurized Volume Hardware Common Interface Requirements Document
KNPR 8715.3, KSC Safety Practices Procedural Requirements, Chapter 20
SSP 32928-103 Requirements for International Partner Cargo Transported on Russian Progress and Soyuz Vehicles II32928-103

SCOPE:

This requirement shall consist of flight and ground hazard reports and their supporting data.

B. CONTENT:

Hazard Reports shall include the documented results of the safety analysis which is performed to identify hazards and their causes. Identify specific safety requirements and non-conformances, specify control methods in the design, and identify verification activities per SSP 30599. Hazard Reports shall be submitted and reviewed using a phased approach per SSP 30599.

The hazard reports will assess each flight product end item for all phases including, interfaces with all other equipment or end items. The provider shall assess on-orbit configurations changes of the flight product that may affect the safety of the Space Station and submit as applicable. A contract letter stating no impact is acceptable. The ground hazard reports assess ground operations for each flight product, support equipment interfacing with flight hardware, and the operations to process the flight product at KSC or other launch processing facilities.

C. FORMAT:

Appendix A of this DRD contains the unique format for hazard reports. Generic hazards are documented on JSC Form (JF) 1477.

The Ground Safety Checklist (JF970) addresses hazards associated with launch processing. The ground safety checklist is used to determine if development of a detailed ground hazard analysis is required.

For items launched on Russian vehicles, JF 907 is used to determine the cargo category. Category 2 items require unique hazard reports. Supporting data based on the requirements stated in RSC-ENERGIA document SSP 32928-103 and JF 906 are used as supporting data for JF 907. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. As required. Any updates shall be made in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

Appendix A
Unique Hazard Report Format

TEAM NAME
International Space Station/Space Shuttle
Hazard Report Number

---

1. HAZARD TITLE:

a. Review Level: Phase
b. Revision Date:
c. Scope:

2. HAZARD CONDITION DESCRIPTION:

3. EFFECTS:

4. CAUSE SUMMARY

1. Title:
2. Title:
3. Title:

5. PROGRAM STAGE(S):

6. INTERFACES:

7. STATUS OF OPEN WORK: (PHASE III ONLY)
All verifications that are not complete at the Phase III level review shall be documented in a verification matrix to be identified in "status of open work" of the hazard report.

8. REMARKS:

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

SUBMITTAL CONCURRENCE:

_____ _____
GFE Safety Engineer, (NAME) Date

_____ _____
Program Safety Manager Date

_____ _____
JSC Project Manager Date

11. APPROVAL:

_____ _____
Chairman, Safety and Mission Assurance Review Team (SMART) Phase I _____ Phase II _____ Phase III _____ Date

Integrated Hazards (ONLY)

_____ _____
Chairman, Safety Review Panel (SRP) Date

_____ _____
Chairman, Safety Review Panel (SRP) Date

For Phase III (ONLY)

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

_____ _____

NASA Manager, Space Station Program Date

Hazard Report Number

Cause 1

1. HAZARD CAUSE DESCRIPTION:

SEVERITY: LIKELIHOOD: CLASSIFICATION:

2. CONTROL(S):

1. Control 1
2. Control 2

3. METHOD FOR VERIFICATION OF CONTROL(S):

1. Verification for Control 1
2. Verification for Control 2

.

.

N. Verification for Control n

4. SAFETY REQUIREMENT(S):

Document: Paragraph:

Title:

Document: Paragraph:

Title:

5. MISSION PHASE(S):

_____ Launch Processing

_____ Launch

_____ Rendezvous/Docking

_____ Deployment

_____ Orbital Assembly & Checkout

_____ On-Orbit Operation

_____ On-Orbit Maintenance

_____ Return/Decommissioning

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

6. PROGRAM STAGE(S):
7. DETECTION AND WARNING METHOD(S):
8. CAUSE REMARKS/BACKGROUND:
9. FMEA/CIL REFERENCE:
10. POINT OF CONTACT:

Name: **Telephone:**

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Risk Assessment Executive Summary Report	09/07/2014	TD-19	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide management with a single report summarizing S&MA risks.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-023 Project Management of GFE Flight Projects SA-WI-014 "Project Management of Flight Hardware Developments"	TD-16 Space Station Failure Modes and Effects Analysis and Critical Items List TD-13 Government Certification and Approval Request (GCAR) TD-18 ISS Hazard Reports TD-08 Engineering Analysis TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS:

SSP 30309, Safety Analysis Requirements Document
SSP 50021, Space Station Safety Requirements
SSP 30599, Safety Review Process
SSP 30234, Failure Modes and Effects Analysis and Critical Items Requirements List for Space Station

SCOPE:

The Risk Assessment Executive Summary Report (RAESR) documents the results of the risk assessment performed for flight products and operations and provides management visibility of the total risk picture. The RAESR consists of four major sections:

1. The system description

2. The results of the Safety Analysis including operational safety

3. The Failure Modes and Effects Analysis (FMEA)

4. The Risk Reports which include the combination of Hazard Report and Critical Items List (CIL) data.

B. CONTENT:

Outline:

i. Cover Page
ii. Signature Page
iii. Table of contents

1.0 Introduction
1.1 Purpose/Scope
1.2 Background
1.3 System Description
1.4 Documentation
1.4.1 Safety Requirements Documents
1.4.2 Reference Documents

2.0 Safety Analysis
2.1 Assumptions
2.2 System Safety Analysis
2.3 Operational Safety Analysis
3.0 Failure Modes and Effects Analysis
3.1 Ground Rules
3.2 Failure Modes and Effects Analysis Worksheets

4.0 Risk Summary

Appendix A
Risk Reports (HR/CIL combination)

Appendix B
Government Certification Approval Request (GCAR), JSC Form 1296

Appendix C
Definitions

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. Update when changes are made to the system description, safety analysis, FMEA or risk reports. The data shall be maintained in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Non-Conformance Record (NCR)	09/07/2014	TD-20	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide that all non-conformances identified at off-site facilities are appropriately identified, documented, and dispositioned in a consistent manner, and to assure that all the necessary data is included and available.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
JPR 1281.13, Control of Non Conforming Product JPR 1281.8, Product Traceability and Identification	SMA-04 Problem Reporting and Corrective Action (PRACA) for JSC/Government Furnished Equipment

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

At a minimum, this DRD is applicable to all items designated as or will be used in the fabrication or assembly of Class I, Class II, or Ground Support Equipment as defined in JPR 1281.8. It establishes the minimum data elements necessary to provide records of a closed loop system for the control of non-conforming products. Non-conformance reporting shall commence with the initial receipt of materials or articles for procurement, and continue through all subsequent phases of the program/project. A non-conformance is defined as failure of an item to meet a specified requirement.

B. CONTENT:

The NCR shall contain the following data elements:

1. A unique and traceable number
2. Identification of the nonconforming article or material
    a. Nomenclature
    b. Part identification number
    c. Serial number/Lot number/Version
    d. Manufacturer's name or the Manufacturer's Contractor and Government Entity (CAGE) code (preferable)
3. The date the non-conformance was discovered
4. The name of the initiator of the non-conformance record
5. A description of the non-conformance including a description of the required characteristics or specification
6. The type of activity being conducted (e.g., fabrication, assembly, qualification test, system test, pre-delivery or pre-installation test, etc.). Reference must be made to applicable procedure numbers
7. When appropriate, identification of the next higher assembly:

a. Nomenclature

b. Part identification number

c. Manufacturer's name or the Manufacturer's CAGE code (preferable)

8. Disposition of the nonconforming article or material

9. The signatures of the personnel authorized to provide disposition

10. Verification that the prescribed disposition was acceptably completed

11. When applicable, a cross-reference to an associated PRACA report.

C. FORMAT:

The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads. Note: For on site hardware and software processing, format shall be in accordance with the JSC Quality Management System

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Flight Products Failure Analysis Report	09/07/2014	TD-21	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
To provide and document the detailed data generated during the testing and analysis of defective hardware returned to the supplier.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
JSC 28035 Program Problem Reporting and Corrective Action (PRACA) Requirements for Johnson Space Center (JSC) Government Furnished Equipment (GFE)	SMA-04 Problem Reporting and Corrective Action for the GFE and Flight Products

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The report documents the test and analyses conducted during an investigation of defective hardware returned to the supplier. The report identifies the root cause of the failure and records the Contractor's recommended corrective action required to prevent another occurrence of the same failure.

B. CONTENT:

The report shall contain the following information as a minimum:

1. Description of when, where, and how the hardware failed along with supporting evidence.
2. Documentation on how the hardware was transported to the vendor.
3. Documentation of how the hardware was received and processed by the vendor.
4. Documentation of tests performed, success criteria, and actual test results obtained in order to assess the failure.
5. Documentation of the analysis performed and results obtained to assess the failure.
6. Documentation on verification of the original certification data, and any discrepancies found.
7. Method used to arrive at root cause of the failure.
8. Rationale used to arrive at recommended corrective action.
9. Plan for implementation and estimated cost of corrective action.

C. FORMAT:

The format is defined by an outline or template associated with this data in the Design Data Management System (DDMS). The format may be varied to match the specific nature of the products being provided. The electronic data shall be delivered to the Design Data Management System (DDMS) in native format compatible with JSC standard office software loads.

D. MAINTENANCE:

See Data Requirements list. The report is updated as required and maintained in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Engineering Design Change Proposal	09/07/2014	TD-22	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Define the Contractor proposed changes to controlled NASA requirements or product configuration.	☒ Technical ☐ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
EA-WI-027	TD-03 Critical Design (CDR) Review Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

This DRD provides a description of the minimum information required to be submitted to NASA when a change to NASA requirements is believed by the Contractor to save money, reduce risk, increase efficiency, improve performance, or improve safety.

B. CONTENT:

The Engineering Design Change Proposal (EDCP) shall contain the following data as a minimum:

1. The Contractor EDCP number, date, and title
2. Description of change including technical impacts, and technical impacts if not changed
3. Justification for change
4. Effectivity of the change specified in terms of deliverable subcontract products and affected serial number or version.
5. Retrofit requirements and proposed incorporation/action when applicable.
6. Data Requirements Documents Affected
7. Estimate of cost impact
8. Impact to Schedule
9. Impacts to Safety

It is acceptable for the Contractor to submit a change using the forms provided by the appropriate NASA change board.

C. FORMAT:

The Contractor's format shall be used unless a NASA configuration control board form is used. Changes to NASA controlled documentation shall be submitted with the current "From" text or drawing and the proposed "To" text or drawing.

D. MAINTENANCE:

See Data Requirements list.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Occupational Health Monthly, Quarterly, and Annual Work Achievement Reports	09/07/2014	OH-01	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To evaluate contractor performance and program effectiveness	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Report shall be prepared for each functional area to include the following: Narrative discussions in each area shall include, but not be limited to, topics such as achievements, accomplishments, issues, concerns, problems, anomalies, that the contractor deems worthy of documenting and conveying to the government.

B. CONTENT:

WEEKLY AND MONTHLY OCCUPATIONAL HEALTH ACTIVITY REPORTS

Industrial Hygiene and Asbestos Control
Narrative of activities (weekly and monthly)
Numbers and types of samples collected, field measurements made, evaluations conducted (monthly)
Numbers of Complaint responses and time of response (monthly)
Numbers of Emergency responses and time of response and numbers of after hour call-outs (monthly)

Radiological Health
Narrative of activities (weekly and monthly)
Numbers and types of samples collected, field measurements made, evaluations conducted (monthly)
Numbers of dosimeters placed/collected (monthly)

Hazard Communication and Occupational Health Training
Narrative of activities (weekly and monthly)
Numbers of Safety Data Sheets processed (monthly)
Numbers and types of classes conducted, numbers of employees attending classes (monthly)
Numbers of employees completing each type of Computer Based Training (monthly)
Number of ergonomic evaluations and numbers of respirator fit tests (monthly)

Environmental Surveillance
Narrative of activities (weekly and monthly)
Numbers and types of samples collected, field measurements made, evaluations conducted (monthly)

Numbers of Complaint responses and type of complaint (monthly)

Environmental Health Laboratory
Narrative of Activities(weekly and monthly)
Type and number of samples submitted (monthly)
Type and number of samples analyzed in-house by EHL staff (monthly)
Type and number of analyses and test results performed in-house by EHL staff (monthly)
Type and number of Quality Control samples analyzed by EHL staff (monthly)
Type and number of samples sent to other analytical laboratories (monthly)
Type and number of analyses and test results performed by other analytical laboratories (monthly)
Number of Analysts reports reviewed and number of Final reports issued (monthly)

WSTF Industrial Hygiene
Narrative of Activities(weekly and monthly)
Numbers and types of samples collected, field measurements made, evaluations conducted (monthly)

MONTHLY, QUARTERLY, SEMI-ANNUAL, AND ANNUAL REPORTS
Field Complaint Log Report (summary and resolution) (Monthly and Annual)
HATS Entries (type and number) (Monthly and Annual)
Food Safety Inspections (quarterly)
Sampling Strategy for Next FY (Annual)
Sampling Accomplishments for Prior FY (Annual)
Asbestos Ambient Monitoring Summary (Quarterly and Annual)
Annual Asbestos Exposure Assessment Summary Report
Annual OSHA Substance Specific Exposure Assessment Report
Annual Indoor Air Quality Investigation Summary Report
Annual Local Exhaust Ventilation Summary Report
Annual Noise Exposure Summary Report
Annual Workplace Hazard Inspection (WHI) Summary Report
Annual Chemical Alarm Summary Report
Annual Occupational Health Training Summary Report
Annual Ergonomic Summary Report
Annual Drinking Water Program Review Report
Radioactive Material Source Inventory (Semi-Annual)
Radiation Generator Inventory (Semi-Annual)
Laser Inventory (Annual)
Radiofrequency Radiation Emitter Inventory (Annual)
WSTF Food Safety Inspections (Quarterly)
EPFOL Assessment Reports (Quarterly)
WSTF Sampling Strategy for Next FY (Annual)
WSTF Sampling Accomplishments for Prior FY (Annual)

Annual Program Review Presentations
Annual Sampling Strategy and Strategy for Coming Year
Asbestos Program
Indoor Air Quality Investigations

Local Exhaust Ventilation and Chemical Alarm Programs
Workplace Hazard Inspections
Ionizing and Non-Ionizing Radiation Programs
Ergonomic Evaluation Program
Hazardous Materials Program
Food Safety Program
Complaints and Hazard Abatement Tracking Programs
Drinking Water Program
Environmental Surveillance Activities

C. FORMAT:

These reports shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

See frequency of report in item B above.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Occupational Health Customer Satisfaction Surveys	09/07/2014	OH-02	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To measure the quality of Occupational Health services. Used for program planning and performance evaluation	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Contractor shall implement customer satisfaction surveys to determine the level of customer satisfaction with provided services.

B. CONTENT:

Surveys shall be administered for JSC Clinical patient interaction, and field occupational health and training activities. The surveys shall shall have numeric scoring and have additional space for written comments.

C. FORMAT:

Survey results and raw data shall be converted to PDF for review by NASA TM.

D. MAINTENANCE:

Monthly data and reports shall be placed on secure web site within ten days of the beginning of the month.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Occupational Health Standard Operating Procedures	09/07/2014	OH-03	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To assure that Standard Operating Procedures are available for operations, training, and reference	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The contractor shall develop and maintain standard operating procedures (SOP) for all operations. SOPs shall be reviewed and updated no less than annually. Standard operating procedures shall conform to Contractor's ISO program.

B. CONTENT:

Examples:

Communication and Notification Procedures
Emergency Response Procedures
Calibration of Instruments
Air Monitoring Procedures
Environmental Health Laboratory Procedures
Radioactive Material Handling Procedures
Hazardous Waste Sampling Procedures
Monitoring Well Sampling Procedures
Drinking Water Sampling Procedures
Ergonomic Field Evaluation and Follow Up
Industrial Hygiene Field Investigation and Documentation
Hazard assessment criteria and Complaint Procedures
Asbestos Spill Response Procedures
Work Place Health Inspections
Hearing Conservation Program Processes and Procedures

C. FORMAT:

The current ISO version of each SOP will be submitted in electronic form (which can be altered) and include an all inclusive table of contents.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

D. MAINTENANCE:

Revision required as SOPs change.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Workplace Health Inspection Reports	09/07/2014	OH-04	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To provide the Johnson Space Center with a health and exposure status of the workplace, health and well being of employees, and compliance with written health program requirements.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

See item 4 above.

B. CONTENT:

In general reports shall contain but are not limited to:

Description of operation, operators of the facility
The status of the potential hazards in the facility
Chemicals used in the facility and a statement of the exposure potential caused by the chemicals
Summary and status of any exposure or environmental monitoring in the facility
Status of any written health programs for the facility
Health training and certification status of employees in the facility
Overall results of the survey including the results of any field screening and the instruments used
Recommendations
Items entered into the JSC hazard abatement system
Education activities performed
Recommendations
Follow up activities

C. FORMAT:

The reports shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

Reports shall be provided to the Facility Manager within one month of inspection. An annual summary report of Workplace Health Inspections is due within the first quarter of the government fiscal year.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Annual Sampling Strategy, Exposure Monitoring, and Compliant Log Database	09/07/2014	OH-05	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
Health exposure data for use in analyzing, trending, planning	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:
Contractor shall develop and maintain occupational health, environmental, and personnel exposure database. The contractor shall perform reviews, statistical analysis, and trending of the sampling activities on an annual basis.

B. CONTENT:

Database, and related tools, shall include but is not limited to:

Name of Chemical, Physical or Biological Stressor
Annual Sampling Strategy
Environmental, Exposure monitoring or investigation results (ability to sort by hazard or facility)
Date collected
Collection location
Laboratory Location and Analysis Method
Applicable Standards
Statistical analysis tools
Trending (as appropriate)
Complaint Log (summary and resolution) (monthly deliverable in DRD-HHPC-OH-1)

C. FORMAT:

Contractor format is acceptable but it must be compatible with JSC standard software loads.

D. MAINTENANCE:

Information shall be kept current and periodically reviewed; any new data shall be entered into the database within 30 days.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Building and Facility Hazardous Material & Components Information	09/07/2014	OH-06	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To maintain information on, or database of, occupational health hazards and provide data for use in analyzing, trending, planning, and corrective actions.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

Contractor shall provide information to the Occupational Health Branch on building and facility hazardous material and/or components. Contractor shall perform a review, statistical analysis, and trending of the findings on an annual basis.

B. CONTENT:

Information recorded in spreadsheets, databases, or related tools shall include but is not limited to:

Asbestos – including locations of identified asbestos containing materials (sortable by type or location), locations of removed asbestos containing materials, suspect “non-asbestos” containing materials, spill summaries, etc.

Lead Based Paint
Confined Spaces
Lasers
Ionizing and Non-ionizing radiation sources
Cooling Towers - Legionella
PCB’s
Chemical Hygiene Laboratories (as defined by 29 CFR 1910.1450)
Locations of other significant health hazards at the center as well as quantity and toxicity.

C. FORMAT:

The contractor’s format is acceptable but must be compatible with JSC standard software loads. Configuration, control and field verification processes shall be developed to assure data integrity.

MAINTENANCE:
Data shall be updated within 30 days of receipt of new data.

D. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
JSC Chemical Inventory and SDS Database	09/07/2014	OH-07	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
To provide JSC with chemical names locations, inventory and use data to generate required state and federal reports	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:
See item 4 above.

B. CONTENT:

(1) Hazardous Material Management Database - Contractor shall maintain and update a hazardous material management program and database that allows JSC employees to electronically access and retrieve chemical inventory information at JSC facilities. At a minimum, chemical inventory information shall be available querying by a) Chemical Abstract System (CAS) number, chemical name, and common name, b) location, building and room number, c) inventory quantity d) peak quantity for the prior calendar year, e) actual or estimated quantity used annually The Contractor shall provide on-line instructions for users viewing information, updating chemical inventory information, and retrieving/downloading chemical inventory information.

(2) Conduct JSC Chemical Inventory Updates - Conduct not less than quarterly, an updated JSC chemical inventory. Contractor shall conduct chemical inventory training annually prior to the annual center-wide inventory event. Training and instructions to NASA and other contractor personnel assisting with the inventory process shall be updated and revised annually to reflect improvements to the database and changes in the regulatory reporting requirements. Quality Assurance/Quality Control (QA/QC) shall be conducted on each year's inventory information to assess the accuracy and completeness of the inventory. The Contractor shall assist in corrective action(s) to identified discrepancies for continuously improving the JSC chemical inventory.

(3) SDS Electronic Inventory - Contractor shall develop, maintain, and continuously update an electronic Safety Data Sheet (SDS) Inventory that allows JSC employees to electronically access and retrieve SDSs 24 hours/day, 365 days per year, querying by Chemical Abstract System (CAS) number, NASA JSC assigned number, chemical name, and common name.

(4) The Contractor shall assist JSC in the development, preparation and filing of electronic and hardcopy report submittals that pertain to the quantities, use, and locations of hazardous chemicals at JSC, as required by local, state, and federal regulatory agencies

(a) Texas Department of State Health Services (TDSHS) "Texas Tier Two" Report and filings to the TDSHS, Houston Fire Department, and Local Emergency Planning Committee(s) (LEPCs).

Regulatory authority for this report: Texas Community Right-to-Know Acts (TCRAs), federal Emergency Planning and Community Right-to-Know Act (EPCRA), 40 (CFR) 302-304, 311, and 312. The filing deadline for each year's reports is March 1st. Forms and instructions are updated annually by TDSHS and sent out in January of each calendar year. Information and forms are available electronically from TDSHS at the following web address: www.tdh.state.tx.us/ech/env/hazcom.htm

(b) Environmental Protection Agency (EPA), Toxic (Chemical) Release Inventory (TRI) Form "R" Report and filings to the EPA Emergency Planning and Community Right to Know Act (EPCRA) Reporting Center, and the Texas Commission on Environmental Quality (TCEQ).
Regulatory authority for this report: EPA EPCRA, Title III, 40 CFR 313. The filing deadline for each year's reports is July 1st. Forms and instructions are updated annually by EPA, and sent out in the spring of each calendar year. Information and forms are available electronically from the EPA at the following web address: www.epa.gov/tri/reporting_materials/forms/index.html.

C. FORMAT:

Contractor format is acceptable but it must be compatible with JSC standard software loads.

D. MAINTENANCE:

Information shall be kept current and periodically reviewed; any new data shall be entered into the database within 30 days.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC –STD-123. See work page for instructions.)

1. DRD Title	2. Date of current version	3. DRL Line	RFP/Contract No. (Procurement completes)
Occupational Health Database Management	09/07/2014	OH-08	NNJ15522169R

4. Use *(Define need for, intended use of, and/or anticipated results of*	5. DRD Category: *(check one)*
Evaluation of overall Occupational Health program by maintenance and update of occupational health databases	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other*
	Contract SOW section 2.0

8. Preparation Information *(Include complete instructions for document preparation)*

A. APPLICABLE DOCUMENTS: NONE

SCOPE:

The contractor shall manage, maintain, and review all occupational health data bases as listed below. The Industrial Hygiene Database (IHD) shall be developed and maintained. All databases listed below shall support statistical analysis at the request of the Occupational Health Branch. Data shall be continuously available to the Occupational Health Branch. Additional data bases, format and platform modifications may be proposed to the Occupational Health Branch.

B. CONTENT:

The following list describes the current suite of contractor managed databases. The contractor is expected to maintain the integrity of the data contained in these databases but may develop different database structures upon Occupational Health Branch notification and approval.

Ergo Database (ERGO)

ERGO automates the ergonomic evaluation, feedback, response, and resolution process. After an ergonomic evaluation is conducted and the evaluator enters the details of an evaluation, the ERGO system then takes over management of the process, sending feedback questionnaires to evaluation subjects, gathering feedback and updating the status of a particular case. The system contacts the ergonomics administrator if there is continued dissatisfaction with ergonomics and even relays a list of subjects experiencing continued discomfort to the medical support staff at the clinic.

Fit-Test Database (FIT)

Third-party hardware/software system. Meets requirements imposed by OSHA's Respiratory Protection Program by collecting and analyzing data, then recommending protective equipment required for specific tasks using hazardous materials.

Hazardous Materials Inventory (HAZMAT)

The hazardous materials inventory is a site-wide, open-access information system that allows the 10,000 plus contractors and civil servants at JSC to look up pertinent data on hazardous chemicals that are stored in locations where they may work or traverse. The information is maintained by a key group of data administrators that are given HAZMAT accounts to use in submitting hazardous substance addition and modification requests that are then approved or rejected by the HAZMAT coordinator. The HAZMAT coordinator utilizes the system to generate annual summary reports for local fire departments and emergency responders, the Environmental Protection Agency and several other environmental and occupational health and safety agencies.

Industrial Hygiene Database (IHD)

An integrated database system designed to support the Occupational Health Services department. The goal of the system is to provide real-time health related information assimilated by employee or by work location.

MEDGATE Industrial Hygiene management System (MEDGATE)

An integrated database system designed to support the Occupational Health Services department. The goal of the system is to provide real-time health related information assimilated by employee or by work location.

Laboratory Information Management System (LIMS)

A database system which supports the Environmental Health Laboratory . LIMS tracks and stores data the samples received in the laboratory through the stages of sample log in, assignment of pre-defined analytical "test plans", the actual analytical result values resulting from the tests and, when applicable, quality control information. The resulting "product" are finalized reports which are sent back to the appropriate requesting parties.

Safety Data Sheet Database (SDS)

The SDS database is a site-wide, open-access information system that stores and serves up scanned material safety data sheets of hazardous products at JSC to all civil servants and contractors that have JSC intranet access. The material safety data sheets are managed by the MSDS coordinator who has special access to the database to upload SDS scans and update records. The system is closely tied to the Hazardous Materials Inventory (HAZMAT) and provides the SDS and ingredient information that is used by the HAZMAT system.

TSI Porta Count Respirator Fit Testing System and Database (Poratcount)

The software used to operate the quantitative respirator fit testing system.

Metrosonics System Software (METR) or Quest System Software (Quest)

The software used for downloading data from noise dosimeters used by Industrial Hygienist. This software also contains modules used in creating reports for Noise Exposure Evaluations.

On-line Computer Based Training (CBT)

Site-wide intranet training application that allows JSC civil servants and contractors to create a profile, login and take computer based training courses in office and occupational ergonomics, blood borne pathogens and hazard communications. The application generates certificates for the user upon successful course completion that can be printed for the user's files. Test results are also stored in a database for generation of reports used by the training coordinator. The software used for downloading data from noise dosimeters used by Industrial Hygienist. This software also contains modules used in creating reports for Noise Exposure Evaluations.

C. FORMAT:

Contractor format is acceptable but it must be compatible with JSC standard software loads.

D. MAINTENANCE:

Information shall be kept current and periodically reviewed; any new data shall be entered into the database within 30 days.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

Human Health and Performance Contract (HHPC)

Installation Accountable Government Property

Attachment J-3

Installation Accountable Government Property

Attachment J-3, Installation Accountable Equipment and Facilities contains applicable inventory and information related to the property and facilities, provided by the Government for the purposes of executing the HHPC contract. The contractor shall maintain an accurate accounting of this property list in executing the contract. The contractor is required to comply with all requirements associated with the proper maintenance and management of this property and facilities. Maintenance refers to the maintenance of equipment within facilities and does not apply to real property or systems. Reference Clause G.6.

A complete listing of Installation Accountable Government Property is provided in a separate Microsoft Excel Spreadsheet, "J-3 Installation Accountable Govt Property," which is attached to this document.

Human Health and Performance Contract (HHPC)

Government Furnished Property

Attachment J-4

Government Furnished Property

A complete listing of Government Furnished Property is provided in a separate Microsoft Excel Spreadsheet, which is attached to this document. The file is entitled as follows:

1. J-4 Government Furnished Property & Materials

Human Health and Performance Contract (HHPC)

Organizational Conflict of Interest (OCI)

Mitigation Plan

Attachment J-5

OCI Mitigation Plan

Attachment J-5, OCI Mitigation Plan, contains the contractor's approach to managing Organizational Conflicts of Interest associated with the HHPC. The OCI Plan is submitted with the contractor's proposal in accordance with DRD HHPC-MGMT-10. This attachment incorporates the contractor's OCI Mitigation Plan as approved by the Government.

Human Health and Performance Contract (HHPC)

Safety and Health Plan

Attachment J-6

Safety and Health Plan

Attachment J-6, Safety and Health Plan, contains the contractor's approach to assuring compliance with applicable safety and health requirements. This attachment incorporates the contractor's Safety and Health Plan submitted in accordance with DRD HHPC-SMA-03 as approved by the government. The final Safety and Health Plan is due in its entirety no later than 15 days before contract start. NASA approval is required no later than contract start.

Human Health and Performance Contract (HHPC)

Small Business Subcontracting Plan

Attachment J-7

Small Business Subcontracting Plan

Attachment J-7, Small Business Subcontracting Plan, contains the contractor's approach to the integration of subcontracts into the overall performance of the HHPC Contract. The subcontracting plan is submitted with the contractor's proposal as approved by the government and in accordance with DRD HHPC-MGMT-11.

Human Health and Performance Contract (HHPC)

Information Technology (IT) Security Plan

Attachment J-8

IT Security Plan

Attachment J-8, IT Security Plan, contains the contractor's approach to IT security for the HHPC Contract. The IT Security Plan is submitted with the contractor's proposal and in accordance with DRD HHPC-IT-02, Information Technology Security Plan and Reports. This attachment incorporates the contractor's IT Security Plan as approved by the government.

Human Health and Performance Contract (HHPC)

Government Property Management Plan

Attachment J-9

Property Management Plan

Attachment J-9, Government Property Management Plan, contains the contractor's approach to managing property associated with the HHPC as required by DRD HHPC-BP-09. This attachment incorporates the contractor's Property Management Plan submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

Contract Phase-In Plan

Attachment J-10

Contract Phase-In Plan

Attachment J-10, Contract Phase-In Plan, contains the contractor's description of their implementation approach to transition development, test, and facility maintenance and operations, functions and data management responsibility from the incumbent contractor as required by DRD HHPC-MGMT-05. This attachment incorporates the contractor's Contract Phase-In Plan submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

Award Fee Plan

Attachment J-11

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1.0 Introduction

In accordance with the provisions of the Federal Acquisition Regulation (FAR) and the NASA/JSC policies, an Award Fee Evaluation Plan is established to evaluate contractor performance and determine the award fee to be earned and payable under this contract. The award fee evaluation process will include both objective and subjective assessments of contractor performance, and apply only to the cost reimbursement portion of the contract.

2.0 Award Fee Provisions

An award fee provision has been established to motivate the contractor to strive for excellence in managerial, technical, schedule, and cost performance. For each period, the contractor may earn an award fee from a minimum of zero dollars to the maximum available award fee shown in Appendix 2: Award Fee Distribution. The contractor will be informed of any changes in evaluation factors or weightings prior to the affected award fee period.

Each award fee evaluation is considered to be final. Any unearned award is lost and cannot be moved into subsequent fee evaluation periods. An overall performance evaluation and fee determination of zero may be made for any evaluation period when there is a major breach of safety or security as defined in NFS 1852.223-75, Major Breach of Safety or Security.

The Government shall pay the fee to the contractor in accordance with Clause G.2 entitled, "Award Fee for Service Contracts."

2.1 Performance Evaluation Board Integration Team (PEB-IT)

The Performance Evaluation Board Integration Team (PEB-IT) will be composed of the contract management team, including the Contracting Officer (CO) and Contracting Officer's –Representative (COR). The COR will be the focal point for the accumulation and development of award fee evaluation technical reports, reviews, and presentations. The CO will be the focal point for contractor performance evaluations relating to contract management. The PEB-IT will evaluate contractor performance using the evaluation factors listed in Section 2.5 – Evaluation Criteria of this plan.

The PEB-IT will provide the contractor interim performance evaluations every three months. The intent of these interim evaluations is to discuss specific areas where future performance improvement is necessary as well as provide positive feedback for areas, where the contractor is doing well.

The PEB-IT will prepare a six month evaluation report for review by the PEB for each evaluation period. This report will include a recommended adjective rating and numerical score representing the contractor's performance for the period evaluated.

2.2 Performance Evaluation Board (PEB)

The PEB will be appointed by the Fee Determination Official (FDO) or his designee. A PEB, comprised of selected technical and contract management personnel of NASA, will evaluate the contractor's performance after each evaluation period to determine whether, and to what extent, the contractor's performance during the evaluation period is deserving of the payment of an award fee. At the end of each evaluation period, the PEB will prepare a summary of the

evaluations for review by the FDO. This summary report will include a recommended adjective rating and numerical score representing the contractor's performance for the period evaluated.

2.3 Fee Determination Official (FDO)

The FDO, a senior NASA official, will determine the contractor's performance score in accordance with the procedures set forth below. After considering available and pertinent information and recommendations, the FDO will make a performance determination for each period in accordance with the provisions of this plan and of Clause B.4, entitled "Estimated Cost and Award Fee."

2.4 Evaluation Procedures

Award fee evaluation periods shall be six months in length, Contractor performance will be assessed at the midpoint and at the end of each evaluation period. The CO may provide contractor performance feedback to the contractor at any time during the evaluation period.

The Government may unilaterally identify areas of special emphasis and prioritize their relative importance. These areas of special emphasis will be communicated to the contractor in writing, prior to the beginning of the applicable evaluation period. The contractor may also provide recommended objective performance metrics, weightings, and specific areas of emphasis for consideration by the Government to be used for the evaluation period no later than 30 days prior to the start of each award fee evaluation period.

Objective performance metrics and specific areas of emphasis may be established by the Government and communicated to the contractor at least 15 calendar days prior to the start of each evaluation period. The Government may unilaterally change the evaluation criteria and weightings prior to the beginning of an award fee evaluation period.

The contractor shall provide a self-evaluation to the CO within five days after the end of a performance period.

PEB findings and fee recommendations will be shared with the contractor to allow the contractor the opportunity to take exception to or accept the PEB evaluation findings. The contractor shall provide a written response to the CO within five days stating acceptance or indicating a need for further FDO consideration. If the contractor takes exception to the PEB findings, such exception shall be stated in writing and be provided to the CO within five working days from the date that the PEB findings were provided to the contractor.

The FDO performance determination will be considered final if no contractor response is received within the five working day period stated above.

The contractor shall submit to the CO a Corrective Action Plan (CAP) for any major weaknesses noted in the PEB report or adverse objective performance metrics identified by the Government as part of the evaluation. The CAP shall be submitted within 15 working days after the final performance determination for each evaluation period. Corrective actions will be closed by concurrence from the CO and the COR.

2.5 Evaluation Criteria

Contractor performance evaluations will be based upon objective and subjective assessments of contractor performance in the areas of technical and management, cost, and small business performance. Objective performance metrics will be developed and used together with subjective award fee evaluations to arrive at an overall recommended numerical and adjective rating for the period.

In order to earn any award fee, the contractor must receive a numerical rating higher than 49. Appendix 1, Evaluation Definitions, provides the performance level definition adjective ratings and corresponding numerical scores that will be used in performance evaluations.

Evaluation Criteria Weighting

1. Technical and Management Performance	50%
Quality of Work Schedule Performance Program Management Technology, Innovation, and Efficiency Improvements	
2. Cost	25%
3. Safety and Health	15%
4. Small Business Goals	10%

2.6 Maximum Available Award Fee Pool

The Award Fee Schedule (see Appendix 2) will reflect the total available award fee for each evaluation period. The total available award fee for each evaluation period shall consist of the sum of the period's available award fee for ordered products and services by TDOs.

2.7 Provisional Payment of Award Fee

Pending a determination of the amount of award fee earned for periodic evaluations, a portion of the available award fee for that period will be provisionally paid to the Contractor on a monthly basis, in accordance with contract Clause G.2 entitled "Award Fee for Service Contracts."

APPENDIX 1

EVALUATION DEFINITIONS

ADJECTIVE RATING	RANGE OF POINTS	DESCRIPTION
Excellent	100 – 91	Of exceptional merit; exemplary performance in a timely, efficient, and economical manner; very minor (if any) deficiencies with no adverse effect on overall performance.
Very Good	90 – 76	Very effective performance, fully responsive to contract; contract requirements accomplished in a timely, efficient, and economical manner for the most part; only minor deficiencies.
Good	75 – 51	Effective performance; fully responsive to contract requirements; reportable deficiencies, but with little identifiable effect on overall performance.
Satisfactory	50	Meets or slightly exceeds minimum acceptable standards; adequate results; reportable deficiencies with identifiable, but not substantial, effects on overall performance.
Unsatisfactory	Less than 50	Does not meet minimum acceptable standards in one or more areas; remedial action required in one or more areas; deficiencies in one or more areas, which adversely affect overall performance. No award fee shall be paid for an unsatisfactory rating

APPENDIX 2

AWARD FEE DISTRIBUTION

Period		Max. Avail. Award Fee	Earned Award Fee
1	10/1/15 to 03/31/16	Based on authorized TDOs	TBD
2	04/1/16 to 9/30/16	Based on authorized TDOs	TBD
3	10/1/16 to 3/31/17	Based on authorized TDOs	TBD
4	04/1/17 to 9/30/17	Based on authorized TDOs	TBD
5	10/1/17 to 3/31/18	Based on authorized TDOs	TBD
6	04/1/18 to 9/30/18	Based on authorized TDOs	TBD
7	10/1/18 to 3/31/19	Based on authorized TDOs	TBD
8	4/1/19 to 9/30/19	Based on authorized TDOs	TBD
9	10/1/19 to 3/31/20	Based on authorized TDOs	TBD
10	4/1/20 to 9/30/20	Based on authorized TDOs	TBD
	Option 1, if exercised, begins 10/1/20		
11*	10/1/20 to 3/31/21	Based on authorized TDOs	TBD
12*	4/1/21 to 9/30/21	Based on authorized TDOs	TBD
13*	9/30/21 to 3/31/22	Based on authorized TDOs	TBD
14*	4/1/22 to 9/30/22	Based on authorized TDOs	TBD
15*	10/1/22 to 3/31/23	Based on authorized TDOs	TBD
16*	4/1/23 to 9/30/23	Based on authorized TDOs	TBD
	Option 2, if exercised, begins 10/1/23		
17*	10/1/23 to 3/31/24	Based on authorized TDOs	TBD

18*	4/1/24 to 9/30/24	Based on authorized TDOs	TBD
19*	10/1/24 to 3/31/25	Based on authorized TDOs	TBD
20*	4/1/25 to 9/30/25	Based on authorized TDOs	TBD

The maximum award fee available for each period is based upon the condition that NASA authorizes the dollar amount of work as identified in B.4 Estimated Cost and Award Fee. Approximately sixty days before each Award Fee period end-date, HHPC and NASA shall confirm that the Award Fee pool is appropriate for the work authorized for the current Award Fee Period.

Note: These amounts are based upon current work authorized and the distribution is based on the time phased evaluation periods. It is anticipated that as additional work is added and/or deleted, then the appropriate time phased evaluation period(s), if necessary, will be adjusted at or near the end of the award fee period.

* These periods are only applicable if Option 1 and 2 are exercised.

Human Health and Performance Contract

Wage Determination

Attachment J-12

JOHNSON SPACE CENTER
WAGE DETERMINATION

JOHNSON SPACE CENTER
WD 05-2515 (Rev.-16) was first posted on www.wdol.gov on 08/05/2014
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REGISTER OF WAGE DETERMINATIONS UNDER THE SERVICE CONTRACT ACT

U.S. DEPARTMENT OF LABOR EMPLOYMENT STANDARDS ADMINISTRATION

By direction of the Secretary of Labor

WAGE AND HOUR DIVISION WASHINGTON D.C. 20210

Wage Determination No.: 2005-2515, Revision No.: 16
Diane C. Koplewski, Director
Division of Wage Determinations
Date Of Revision: 07/25/2014

State: Texas

Area: Texas Counties of Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Grimes, Harris, Houston, Jackson, Lavaca, Liberty, Madison, Matagorda, Montgomery, San Jacinto, Trinity, Walker, Waller, Washington, Wharton

Fringe Benefits Required Follow the Occupational Listing

OCCUPATION CODE - TITLE	FOOTNOTE	RATE
01000 - Administrative Support And Clerical Occupations		
01011 - Accounting Clerk I		14.98
01012 - Accounting Clerk II		16.82
01013 - Accounting Clerk III		18.82
01020 - Administrative Assistant		25.91
01040 - Court Reporter		21.79
01051 - Data Entry Operator I		13.24
01052 - Data Entry Operator II		14.45
01060 - Dispatcher, Motor Vehicle		15.96
01070 - Document Preparation Clerk		13.41
01090 - Duplicating Machine Operator		13.41
01111 - General Clerk I		11.88
01112 - General Clerk II		13.27
01113 - General Clerk III		14.90
01120 - Housing Referral Assistant		20.69
01141 - Messenger Courier		12.55
01191 - Order Clerk I		13.52
01192 - Order Clerk II		15.24
01261 - Personnel Assistant (Employment) I		15.43
01262 - Personnel Assistant (Employment) II		17.27
01263 - Personnel Assistant (Employment) III		19.25

01270 - Production Control Clerk	19.10
01280 - Receptionist	12.02
01290 - Rental Clerk	14.75
01300 - Scheduler, Maintenance	16.59
01311 - Secretary I	16.59
01312 - Secretary II	18.57
01313 - Secretary III	20.69
01320 - Service Order Dispatcher	15.16
01410 - Supply Technician	25.91
01420 - Survey Worker	17.79
01531 - Travel Clerk I	13.71
01532 - Travel Clerk II	14.81
01533 - Travel Clerk III	15.83
01611 - Word Processor I	14.29
01612 - Word Processor II	16.04
01613 - Word Processor III	17.95
05000 - Automotive Service Occupations	
05005 - Automobile Body Repairer, Fiberglass	25.76
05010 - Automotive Electrician	23.79
05040 - Automotive Glass Installer	21.96
05070 - Automotive Worker	21.96
05110 - Mobile Equipment Servicer	20.23
05130 - Motor Equipment Metal Mechanic	25.76
05160 - Motor Equipment Metal Worker	21.96
05190 - Motor Vehicle Mechanic	25.76
05220 - Motor Vehicle Mechanic Helper	19.40
05250 - Motor Vehicle Upholstery Worker	20.83
05280 - Motor Vehicle Wrecker	21.96
05310 - Painter, Automotive	23.79
05340 - Radiator Repair Specialist	22.88
05370 - Tire Repairer	14.40
05400 - Transmission Repair Specialist	25.76
07000 - Food Preparation And Service Occupations	
07010 - Baker	10.06
07041 - Cook I	9.52
07042 - Cook II	10.88
07070 - Dishwasher	8.11
07130 - Food Service Worker	9.12
07210 - Meat Cutter	12.91
07260 - Waiter/Waitress	8.19
09000 - Furniture Maintenance And Repair Occupations	
09010 - Electrostatic Spray Painter	18.32
09040 - Furniture Handler	11.95
09080 - Furniture Refinisher	17.70
09090 - Furniture Refinisher Helper	14.58
09110 - Furniture Repairer, Minor	16.82

09130 - Upholsterer	18.32
11000 - General Services And Support Occupations	
11030 - Cleaner, Vehicles	9.90
11060 - Elevator Operator	8.82
11090 - Gardener	14.52
11122 - Housekeeping Aide	8.84
11150 - Janitor	8.84
11210 - Laborer, Grounds Maintenance	10.93
11240 - Maid or Houseman	7.96
11260 - Pruner	9.25
11270 - Tractor Operator	12.82
11330 - Trail Maintenance Worker	10.93
11360 - Window Cleaner	9.81
12000 - Health Occupations	
12010 - Ambulance Driver	15.00
12011 - Breath Alcohol Technician	15.64
12012 - Certified Occupational Therapist Assistant	23.69
12015 - Certified Physical Therapist Assistant	24.52
12020 - Dental Assistant	15.64
12025 - Dental Hygienist	32.93
12030 - EKG Technician	25.92
12035 - Electroneurodiagnostic Technologist	25.92
12040 - Emergency Medical Technician	15.00
12071 - Licensed Practical Nurse I	19.05
12072 - Licensed Practical Nurse II	21.32
12073 - Licensed Practical Nurse III	23.76
12100 - Medical Assistant	12.50
12130 - Medical Laboratory Technician	16.63
12160 - Medical Record Clerk	14.53
12190 - Medical Record Technician	16.57
12195 - Medical Transcriptionist	16.81
12210 - Nuclear Medicine Technologist	35.13
12221 - Nursing Assistant I	8.57
12222 - Nursing Assistant II	10.36
12223 - Nursing Assistant III	11.31
12224 - Nursing Assistant IV	12.69
12235 - Optical Dispenser	16.79
12236 - Optical Technician	15.29
12250 - Pharmacy Technician	19.18
12280 - Phlebotomist	13.30
12305 - Radiologic Technologist	26.70
12311 - Registered Nurse I	30.36
12312 - Registered Nurse II	38.37
12313 - Registered Nurse II, Specialist	38.37
12314 - Registered Nurse III	44.91
12315 - Registered Nurse III, Anesthetist	44.91

12316 - Registered Nurse IV		53.84
12317 - Scheduler (Drug and Alcohol Testing)		21.85
13000 - Information And Arts Occupations		
13011 - Exhibits Specialist I		19.30
13012 - Exhibits Specialist II		24.74
13013 - Exhibits Specialist III		28.94
13041 - Illustrator I		19.30
13042 - Illustrator II		23.91
13043 - Illustrator III		30.12
13047 - Librarian		26.69
13050 - Library Aide/Clerk		10.84
13054 - Library Information Technology Systems Administrator		24.09
13058 - Library Technician		16.04
13061 - Media Specialist I		17.39
13062 - Media Specialist II		19.46
13063 - Media Specialist III		21.68
13071 - Photographer I		15.32
13072 - Photographer II		18.15
13073 - Photographer III		22.56
13074 - Photographer IV		27.49
13075 - Photographer V		33.07
13110 - Video Teleconference Technician		16.73
14000 - Information Technology Occupations		
14041 - Computer Operator I		17.31
14042 - Computer Operator II		19.37
14043 - Computer Operator III		21.59
14044 - Computer Operator IV		24.00
14045 - Computer Operator V		26.57
14071 - Computer Programmer I	(see 1)	26.04
14072 - Computer Programmer II	(see 1)	
14073 - Computer Programmer III	(see 1)	
14074 - Computer Programmer IV	(see 1)	
14101 - Computer Systems Analyst I	(see 1)	
14102 - Computer Systems Analyst II	(see 1)	
14103 - Computer Systems Analyst III	(see 1)	
14150 - Peripheral Equipment Operator		17.31
14160 - Personal Computer Support Technician		24.00
15000 - Instructional Occupations		
15010 - Aircrew Training Devices Instructor (Non-Rated)		33.08
15020 - Aircrew Training Devices Instructor (Rated)		40.02
15030 - Air Crew Training Devices Instructor (Pilot)		47.98
15050 - Computer Based Training Specialist / Instructor		33.08
15060 - Educational Technologist		29.23
15070 - Flight Instructor (Pilot)		47.98
15080 - Graphic Artist		26.72

15090 - Technical Instructor	22.43
15095 - Technical Instructor/Course Developer	27.43
15110 - Test Proctor	18.43
15120 - Tutor	18.43
16000 - Laundry, Dry-Cleaning, Pressing And Related Occupations	
16010 - Assembler	9.40
16030 - Counter Attendant	9.40
16040 - Dry Cleaner	12.06
16070 - Finisher, Flatwork, Machine	9.40
16090 - Presser, Hand	9.40
16110 - Presser, Machine, Drycleaning	9.40
16130 - Presser, Machine, Shirts	9.40
16160 - Presser, Machine, Wearing Apparel, Laundry	9.40
16190 - Sewing Machine Operator	12.79
16220 - Tailor	13.75
16250 - Washer, Machine	10.32
19000 - Machine Tool Operation And Repair Occupations	
19010 - Machine-Tool Operator (Tool Room)	19.71
19040 - Tool And Die Maker	23.23
21000 - Materials Handling And Packing Occupations	
21020 - Forklift Operator	13.25
21030 - Material Coordinator	19.46
21040 - Material Expediter	19.46
21050 - Material Handling Laborer	12.26
21071 - Order Filler	11.47
21080 - Production Line Worker (Food Processing)	13.25
21110 - Shipping Packer	14.60
21130 - Shipping/Receiving Clerk	14.60
21140 - Store Worker I	11.34
21150 - Stock Clerk	16.06
21210 - Tools And Parts Attendant	13.58
21410 - Warehouse Specialist	13.25
23000 - Mechanics And Maintenance And Repair Occupations	
23010 - Aerospace Structural Welder	29.47
23021 - Aircraft Mechanic I	28.07
23022 - Aircraft Mechanic II	29.47
23023 - Aircraft Mechanic III	30.94
23040 - Aircraft Mechanic Helper	21.98
23050 - Aircraft, Painter	25.61
23060 - Aircraft Servicer	24.44
23080 - Aircraft Worker	25.76
23110 - Appliance Mechanic	18.61
23120 - Bicycle Repairer	13.91
23125 - Cable Splicer	25.34
23130 - Carpenter, Maintenance	19.71
23140 - Carpet Layer	18.45

23160 - Electrician, Maintenance	26.51
23181 - Electronics Technician Maintenance I	21.28
23182 - Electronics Technician Maintenance II	23.89
23183 - Electronics Technician Maintenance III	25.10
23260 - Fabric Worker	17.17
23290 - Fire Alarm System Mechanic	19.95
23310 - Fire Extinguisher Repairer	15.88
23311 - Fuel Distribution System Mechanic	20.96
23312 - Fuel Distribution System Operator	16.33
23370 - General Maintenance Worker	18.08
23380 - Ground Support Equipment Mechanic	28.07
23381 - Ground Support Equipment Servicer	24.44
23382 - Ground Support Equipment Worker	25.76
23391 - Gunsmith I	15.88
23392 - Gunsmith II	18.45
23393 - Gunsmith III	20.81
23410 - Heating, Ventilation And Air-Conditioning Mechanic	21.04
23411 - Heating, Ventilation And Air Contditioning Mechanic (Research Facility)	21.95
23430 - Heavy Equipment Mechanic	19.79
23440 - Heavy Equipment Operator	19.26
23460 - Instrument Mechanic	25.87
23465 - Laboratory/Shelter Mechanic	19.71
23470 - Laborer	11.04
23510 - Locksmith	18.99
23530 - Machinery Maintenance Mechanic	24.33
23550 - Machinist, Maintenance	20.81
23580 - Maintenance Trades Helper	14.94
23591 - Metrology Technician I	25.87
23592 - Metrology Technician II	26.99
23593 - Metrology Technician III	28.14
23640 - Millwright	21.53
23710 - Office Appliance Repairer	18.99
23760 - Painter, Maintenance	18.99
23790 - Pipefitter, Maintenance	21.38
23810 - Plumber, Maintenance	20.88
23820 - Pneudraulic Systems Mechanic	20.81
23850 - Rigger	20.81
23870 - Scale Mechanic	18.45
23890 - Sheet-Metal Worker, Maintenance	19.95
23910 - Small Engine Mechanic	18.08
23931 - Telecommunications Mechanic I	23.89
23932 - Telecommunications Mechanic II	24.95
23950 - Telephone Lineman	25.52
23960 - Welder, Combination, Maintenance	20.27

23965 - Well Driller	20.81
23970 - Woodcraft Worker	20.81
23980 - Woodworker	15.04
24000 - Personal Needs Occupations	
24570 - Child Care Attendant	10.65
24580 - Child Care Center Clerk	13.27
24610 - Chore Aide	7.35
24620 - Family Readiness And Support Services Coordinator	13.83
24630 - Homemaker	16.84
25000 - Plant And System Operations Occupations	
25010 - Boiler Tender	22.20
25040 - Sewage Plant Operator	18.70
25070 - Stationary Engineer	22.20
25190 - Ventilation Equipment Tender	14.58
25210 - Water Treatment Plant Operator	18.32
27000 - Protective Service Occupations	
27004 - Alarm Monitor	16.14
27007 - Baggage Inspector	11.56
27008 - Corrections Officer	19.62
27010 - Court Security Officer	21.18
27030 - Detection Dog Handler	17.90
27040 - Detention Officer	19.62
27070 - Firefighter	20.41
27101 - Guard I	11.56
27102 - Guard II	17.90
27131 - Police Officer I	24.19
27132 - Police Officer II	26.88
28000 - Recreation Occupations	
28041 - Carnival Equipment Operator	11.63
28042 - Carnival Equipment Repairer	12.36
28043 - Carnival Equpment Worker	8.51
28210 - Gate Attendant/Gate Tender	13.90
28310 - Lifeguard	12.38
28350 - Park Attendant (Aide)	15.55
28510 - Recreation Aide/Health Facility Attendant	11.35
28515 - Recreation Specialist	17.83
28630 - Sports Official	12.38
28690 - Swimming Pool Operator	17.44
29000 - Stevedoring/Longshoremen Occupational Services	
29010 - Blocker And Bracer	20.12
29020 - Hatch Tender	20.12
29030 - Line Handler	20.12
29041 - Stevedore I	18.72
29042 - Stevedore II	21.50
30000 - Technical Occupations	

30010 - Air Traffic Control Specialist, Center (HFO)	(see 2)	40.33
30011 - Air Traffic Control Specialist, Station (HFO)	(see 2)	27.81
30012 - Air Traffic Control Specialist, Terminal (HFO)	(see 2)	30.63
30021 - Archeological Technician I		21.56
30022 - Archeological Technician II		25.47
30023 - Archeological Technician III		30.62
30030 - Cartographic Technician		30.62
30040 - Civil Engineering Technician		30.03
30061 - Drafter/CAD Operator I		21.56
30062 - Drafter/CAD Operator II		24.71
30063 - Drafter/CAD Operator III		27.56
30064 - Drafter/CAD Operator IV		33.10
30081 - Engineering Technician I		20.02
30082 - Engineering Technician II		22.48
30083 - Engineering Technician III		25.15
30084 - Engineering Technician IV		31.09
30085 - Engineering Technician V		38.65
30086 - Engineering Technician VI		46.10
30090 - Environmental Technician		29.96
30210 - Laboratory Technician		23.56
30240 - Mathematical Technician		30.62
30361 - Paralegal/Legal Assistant I		22.52
30362 - Paralegal/Legal Assistant II		27.90
30363 - Paralegal/Legal Assistant III		34.12
30364 - Paralegal/Legal Assistant IV		41.27
30390 - Photo-Optics Technician		30.62
30461 - Technical Writer I		23.21
30462 - Technical Writer II		28.38
30463 - Technical Writer III		34.93
30491 - Unexploded Ordnance (UXO) Technician I		25.63
30492 - Unexploded Ordnance (UXO) Technician II		31.01
30493 - Unexploded Ordnance (UXO) Technician III		37.17
30494 - Unexploded (UXO) Safety Escort		25.63
30495 - Unexploded (UXO) Sweep Personnel		25.63
30620 - Weather Observer, Combined Upper Air Or Surface Programs	(see 2)	26.35
30621 - Weather Observer, Senior	(see 2)	30.48
31000 - Transportation/Mobile Equipment Operation Occupations		
31020 - Bus Aide		11.88
31030 - Bus Driver		17.06
31043 - Driver Courier		14.03
31260 - Parking and Lot Attendant		9.17
31290 - Shuttle Bus Driver		15.28
31310 - Taxi Driver		11.54
31361 - Truckdriver, Light		15.28
31362 - Truckdriver, Medium		18.98

31363 - Truckdriver, Heavy	20.32
31364 - Truckdriver, Tractor-Trailer	20.32
99000 - Miscellaneous Occupations	
99030 - Cashier	10.01
99050 - Desk Clerk	11.72
99095 - Embalmer	23.71
99251 - Laboratory Animal Caretaker I	9.83
99252 - Laboratory Animal Caretaker II	10.71
99310 - Mortician	26.44
99410 - Pest Controller	15.80
99510 - Photofinishing Worker	12.62
99710 - Recycling Laborer	16.46
99711 - Recycling Specialist	20.06
99730 - Refuse Collector	14.67
99810 - Sales Clerk	12.66
99820 - School Crossing Guard	10.96
99830 - Survey Party Chief	20.96
99831 - Surveying Aide	14.35
99832 - Surveying Technician	18.13
99840 - Vending Machine Attendant	12.00
99841 - Vending Machine Repairer	14.41
99842 - Vending Machine Repairer Helper	12.31

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: $4.02 per hour or $160.80 per week or $696.79 per month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

THE OCCUPATIONS WHICH HAVE NUMBERED FOOTNOTES IN PARENTHESES RECEIVE THE FOLLOWING:

1) COMPUTER EMPLOYEES: Under the SCA at section 8(b), this wage determination does

not apply to any employee who individually qualifies as a bona fide executive, administrative, or professional employee as defined in 29 C.F.R. Part 541. Because most Computer System Analysts and Computer Programmers who are compensated at a rate not less than $27.63 (or on a salary or fee basis at a rate not less than $455 per week) an hour would likely qualify as exempt computer professionals, (29 C.F.R. 541.400) wage rates may not be listed on this wage determination for all occupations within those job families. In addition, because this wage determination may not list a wage rate for some or all occupations within those job families if the survey data indicates that the prevailing wage rate for the occupation equals or exceeds $27.63 per hour conformances may be necessary for certain nonexempt employees. For example, if an individual employee is nonexempt but nevertheless performs duties within the scope of one of the Computer Systems Analyst or Computer Programmer occupations for which this wage determination does not specify an SCA wage rate, then the wage rate for that employee must be conformed in accordance with the conformance procedures described in the conformance note included on this wage determination.

Additionally, because job titles vary widely and change quickly in the computer industry, job titles are not determinative of the application of the computer professional exemption. Therefore, the exemption applies only to computer employees who satisfy the compensation requirements and whose primary duty consists of:

(1) The application of systems analysis techniques and procedures, including consulting with users, to determine hardware, software or system functional specifications;

(2) The design, development, documentation, analysis, creation, testing or modification of computer systems or programs, including prototypes, based on and related to user or system design specifications;

(3) The design, documentation, testing, creation or modification of computer programs related to machine operating systems; or

(4) A combination of the aforementioned duties, the performance of which requires the same level of skills. (29 C.F.R. 541.400).

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

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

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

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A links to the Directory may be found on the WHD home page at http://www.dol.gov/esa/whd/ or through the Wage Determinations On-Line (WDOL) Web site at http://wdol.gov/.

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

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to

provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

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

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

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

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

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

6) The contractor informs the affected employees.

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

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

WHITE SANDS TEST FACILITY
WAGE DETERMINATION

WHITE SANDS TEST FACILITY
WD 05-2511 (Rev.-18) was first posted on www.wdol.gov on 08/05/2014

REGISTER OF WAGE DETERMINATIONS UNDER THE SERVICE CONTRACT ACT

U.S. DEPARTMENT OF LABOR EMPLOYMENT STANDARDS ADMINISTRATION

By direction of the Secretary of Labor
WAGE AND HOUR DIVISION WASHINGTON D.C. 20210

Wage Determination No.: 2005-2511
Revision No.: 18
Date of Revision: 07/25/2014

Diane C. Koplewski, Director
Division of Wage Determinations

States: New Mexico, Texas

Area: New Mexico Counties of Chaves, Dona Ana, Eddy, Grant, Hidalgo, Lincoln, Luna, Otero, Sierra

Texas Counties of Culberson, El Paso, Hudspeth

Fringe Benefits Required Follow the Occupational Listing

OCCUPATION CODE - TITLE	FOOTNOTE	RATE
01000 - Administrative Support And Clerical Occupations		
01011 - Accounting Clerk I		12.78
01012 - Accounting Clerk II		14.46
01013 - Accounting Clerk III		16.18
01020 - Administrative Assistant		17.66
01040 - Court Reporter		15.70
01051 - Data Entry Operator I		9.57
01052 - Data Entry Operator II		10.56
01060 - Dispatcher, Motor Vehicle		13.41
01070 - Document Preparation Clerk		11.19
01090 - Duplicating Machine Operator		11.19
01111 - General Clerk I		9.61
01112 - General Clerk II		10.49
01113 - General Clerk III		11.77
01120 - Housing Referral Assistant		14.98
01141 - Messenger Courier		8.76
01191 - Order Clerk I		10.48

01192 - Order Clerk II	11.44
01261 - Personnel Assistant (Employment) I	12.80
01262 - Personnel Assistant (Employment) II	14.44
01263 - Personnel Assistant (Employment) III	15.99
01270 - Production Control Clerk	16.69
01280 - Receptionist	9.47
01290 - Rental Clerk	10.50
01300 - Scheduler, Maintenance	12.00
01311 - Secretary I	12.01
01312 - Secretary II	13.43
01313 - Secretary III	14.98
01320 - Service Order Dispatcher	11.77
01410 - Supply Technician	17.23
01420 - Survey Worker	13.70
01531 - Travel Clerk I	11.16
01532 - Travel Clerk II	12.20
01533 - Travel Clerk III	13.00
01611 - Word Processor I	12.87
01612 - Word Processor II	14.45
01613 - Word Processor III	16.16
05000 - Automotive Service Occupations	
05005 - Automobile Body Repairer, Fiberglass	16.41
05010 - Automotive Electrician	15.40
05040 - Automotive Glass Installer	14.37
05070 - Automotive Worker	14.37
05110 - Mobile Equipment Servicer	12.32
05130 - Motor Equipment Metal Mechanic	16.41
05160 - Motor Equipment Metal Worker	14.37
05190 - Motor Vehicle Mechanic	17.31
05220 - Motor Vehicle Mechanic Helper	11.29
05250 - Motor Vehicle Upholstery Worker	13.34
05280 - Motor Vehicle Wrecker	14.37
05310 - Painter, Automotive	15.40
05340 - Radiator Repair Specialist	14.37
05370 - Tire Repairer	11.33
05400 - Transmission Repair Specialist	16.41
07000 - Food Preparation And Service Occupations	
07010 - Baker	10.51
07041 - Cook I	9.61
07042 - Cook II	11.41
07070 - Dishwasher	7.37
07130 - Food Service Worker	8.06
07210 - Meat Cutter	11.04
07260 - Waiter/Waitress	7.30
09000 - Furniture Maintenance And Repair Occupations	
09010 - Electrostatic Spray Painter	15.73

09040 - Furniture Handler	8.80
09080 - Furniture Refinisher	15.73
09090 - Furniture Refinisher Helper	11.05
09110 - Furniture Repairer, Minor	13.15
09130 - Upholsterer	15.73
11000 - General Services And Support Occupations	
11030 - Cleaner, Vehicles	8.07
11060 - Elevator Operator	8.07
11090 - Gardener	12.04
11122 - Housekeeping Aide	9.02
11150 - Janitor	9.02
11210 - Laborer, Grounds Maintenance	9.02
11240 - Maid or Houseman	7.74
11260 - Pruner	7.79
11270 - Tractor Operator	11.51
11330 - Trail Maintenance Worker	9.02
11360 - Window Cleaner	10.45
12000 - Health Occupations	
12010 - Ambulance Driver	12.83
12011 - Breath Alcohol Technician	14.94
12012 - Certified Occupational Therapist Assistant	22.21
12015 - Certified Physical Therapist Assistant	21.09
12020 - Dental Assistant	12.61
12025 - Dental Hygienist	27.43
12030 - EKG Technician	25.42
12035 - Electroneurodiagnostic Technologist	25.42
12040 - Emergency Medical Technician	12.83
12071 - Licensed Practical Nurse I	16.95
12072 - Licensed Practical Nurse II	18.96
12073 - Licensed Practical Nurse III	21.15
12100 - Medical Assistant	10.86
12130 - Medical Laboratory Technician	13.77
12160 - Medical Record Clerk	13.27
12190 - Medical Record Technician	14.84
12195 - Medical Transcriptionist	14.31
12210 - Nuclear Medicine Technologist	33.37
12221 - Nursing Assistant I	9.26
12222 - Nursing Assistant II	10.41
12223 - Nursing Assistant III	11.36
12224 - Nursing Assistant IV	12.75
12235 - Optical Dispenser	11.21
12236 - Optical Technician	9.30
12250 - Pharmacy Technician	13.41
12280 - Phlebotomist	13.52
12305 - Radiologic Technologist	23.81
12311 - Registered Nurse I	23.99

12312 - Registered Nurse II		28.64
12313 - Registered Nurse II, Specialist		28.64
12314 - Registered Nurse III		34.65
12315 - Registered Nurse III, Anesthetist		34.65
12316 - Registered Nurse IV		41.55
12317 - Scheduler (Drug and Alcohol Testing)		21.37
13000 - Information And Arts Occupations		
13011 - Exhibits Specialist I		19.15
13012 - Exhibits Specialist II		23.08
13013 - Exhibits Specialist III		27.03
13041 - Illustrator I		19.15
13042 - Illustrator II		23.08
13043 - Illustrator III		27.03
13047 - Librarian		24.46
13050 - Library Aide/Clerk		11.49
13054 - Library Information Technology Systems Administrator		22.09
13058 - Library Technician		17.24
13061 - Media Specialist I		15.83
13062 - Media Specialist II		17.83
13063 - Media Specialist III		19.88
13071 - Photographer I		12.93
13072 - Photographer II		16.45
13073 - Photographer III		20.57
13074 - Photographer IV		24.45
13075 - Photographer V		27.88
13110 - Video Teleconference Technician		14.70
14000 - Information Technology Occupations		
14041 - Computer Operator I		13.67
14042 - Computer Operator II		15.46
14043 - Computer Operator III		17.25
14044 - Computer Operator IV		19.17
14045 - Computer Operator V		21.22
14071 - Computer Programmer I	(see 1)	21.43
14072 - Computer Programmer II	(see 1)	26.56
14073 - Computer Programmer III	(see 1)	
14074 - Computer Programmer IV	(see 1)	
14101 - Computer Systems Analyst I	(see 1)	
14102 - Computer Systems Analyst II	(see 1)	
14103 - Computer Systems Analyst III	(see 1)	
14150 - Peripheral Equipment Operator		13.67
14160 - Personal Computer Support Technician		22.41
15000 - Instructional Occupations		
15010 - Aircrew Training Devices Instructor (Non-Rated)		26.13
15020 - Aircrew Training Devices Instructor (Rated)		32.14
15030 - Air Crew Training Devices Instructor (Pilot)		37.89

15050 - Computer Based Training Specialist / Instructor	26.13
15060 - Educational Technologist	32.13
15070 - Flight Instructor (Pilot)	37.89
15080 - Graphic Artist	19.52
15090 - Technical Instructor	18.06
15095 - Technical Instructor/Course Developer	22.09
15110 - Test Proctor	14.58
15120 - Tutor	14.58
16000 - Laundry, Dry-Cleaning, Pressing And Related Occupations	
16010 - Assembler	7.64
16030 - Counter Attendant	7.64
16040 - Dry Cleaner	9.31
16070 - Finisher, Flatwork, Machine	7.64
16090 - Presser, Hand	7.64
16110 - Presser, Machine, Drycleaning	7.64
16130 - Presser, Machine, Shirts	7.64
16160 - Presser, Machine, Wearing Apparel, Laundry	7.64
16190 - Sewing Machine Operator	9.84
16220 - Tailor	10.41
16250 - Washer, Machine	8.19
19000 - Machine Tool Operation And Repair Occupations	
19010 - Machine-Tool Operator (Tool Room)	15.73
19040 - Tool And Die Maker	20.26
21000 - Materials Handling And Packing Occupations	
21020 - Forklift Operator	10.91
21030 - Material Coordinator	16.69
21040 - Material Expediter	16.69
21050 - Material Handling Laborer	9.14
21071 - Order Filler	10.49
21080 - Production Line Worker (Food Processing)	10.91
21110 - Shipping Packer	10.48
21130 - Shipping/Receiving Clerk	10.49
21140 - Store Worker I	8.93
21150 - Stock Clerk	12.82
21210 - Tools And Parts Attendant	10.91
21410 - Warehouse Specialist	10.91
23000 - Mechanics And Maintenance And Repair Occupations	
23010 - Aerospace Structural Welder	26.14
23021 - Aircraft Mechanic I	23.82
23022 - Aircraft Mechanic II	26.14
23023 - Aircraft Mechanic III	27.45
23040 - Aircraft Mechanic Helper	16.39
23050 - Aircraft, Painter	18.67
23060 - Aircraft Servicer	19.25
23080 - Aircraft Worker	20.78
23110 - Appliance Mechanic	16.14

23120 - Bicycle Repairer	11.33
23125 - Cable Splicer	21.87
23130 - Carpenter, Maintenance	15.73
23140 - Carpet Layer	14.64
23160 - Electrician, Maintenance	18.27
23181 - Electronics Technician Maintenance I	19.57
23182 - Electronics Technician Maintenance II	21.02
23183 - Electronics Technician Maintenance III	22.67
23260 - Fabric Worker	13.46
23290 - Fire Alarm System Mechanic	16.62
23310 - Fire Extinguisher Repairer	12.26
23311 - Fuel Distribution System Mechanic	19.79
23312 - Fuel Distribution System Operator	15.20
23370 - General Maintenance Worker	14.64
23380 - Ground Support Equipment Mechanic	23.82
23381 - Ground Support Equipment Servicer	19.25
23382 - Ground Support Equipment Worker	20.78
23391 - Gunsmith I	12.26
23392 - Gunsmith II	14.64
23393 - Gunsmith III	16.96
23410 - Heating, Ventilation And Air-Conditioning Mechanic	16.12
23411 - Heating, Ventilation And Air Contditioning Mechanic (Research Facility)	17.24
23430 - Heavy Equipment Mechanic	17.80
23440 - Heavy Equipment Operator	16.96
23460 - Instrument Mechanic	18.50
23465 - Laboratory/Shelter Mechanic	15.73
23470 - Laborer	9.14
23510 - Locksmith	15.73
23530 - Machinery Maintenance Mechanic	16.96
23550 - Machinist, Maintenance	16.31
23580 - Maintenance Trades Helper	11.27
23591 - Metrology Technician I	18.50
23592 - Metrology Technician II	19.66
23593 - Metrology Technician III	20.93
23640 - Millwright	17.46
23710 - Office Appliance Repairer	15.62
23760 - Painter, Maintenance	14.67
23790 - Pipefitter, Maintenance	17.63
23810 - Plumber, Maintenance	16.55
23820 - Pneudraulic Systems Mechanic	16.96
23850 - Rigger	16.96
23870 - Scale Mechanic	14.64
23890 - Sheet-Metal Worker, Maintenance	15.63
23910 - Small Engine Mechanic	14.64

23931 - Telecommunications Mechanic I	21.99
23932 - Telecommunications Mechanic II	23.51
23950 - Telephone Lineman	19.48
23960 - Welder, Combination, Maintenance	16.96
23965 - Well Driller	16.96
23970 - Woodcraft Worker	16.96
23980 - Woodworker	12.26
24000 - Personal Needs Occupations	
24570 - Child Care Attendant	8.41
24580 - Child Care Center Clerk	10.49
24610 - Chore Aide	8.29
24620 - Family Readiness And Support Services Coordinator	11.01
24630 - Homemaker	12.70
25000 - Plant And System Operations Occupations	
25010 - Boiler Tender	19.71
25040 - Sewage Plant Operator	17.19
25070 - Stationary Engineer	18.43
25190 - Ventilation Equipment Tender	12.83
25210 - Water Treatment Plant Operator	17.19
27000 - Protective Service Occupations	
27004 - Alarm Monitor	15.20
27007 - Baggage Inspector	10.38
27008 - Corrections Officer	18.66
27010 - Court Security Officer	18.66
27030 - Detection Dog Handler	14.84
27040 - Detention Officer	18.66
27070 - Firefighter	19.83
27101 - Guard I	10.38
27102 - Guard II	14.84
27131 - Police Officer I	21.41
27132 - Police Officer II	23.78
28000 - Recreation Occupations	
28041 - Carnival Equipment Operator	11.64
28042 - Carnival Equipment Repairer	12.69
28043 - Carnival Equpment Worker	8.45
28210 - Gate Attendant/Gate Tender	13.37
28310 - Lifeguard	11.90
28350 - Park Attendant (Aide)	14.96
28510 - Recreation Aide/Health Facility Attendant	10.92
28515 - Recreation Specialist	14.10
28630 - Sports Official	11.92
28690 - Swimming Pool Operator	16.36
29000 - Stevedoring/Longshoremen Occupational Services	
29010 - Blocker And Bracer	17.06
29020 - Hatch Tender	17.06

29030 - Line Handler		17.06
29041 - Stevedore I		15.68
29042 - Stevedore II		18.98
30000 - Technical Occupations		
30010 - Air Traffic Control Specialist, Center (HFO)	(see 2)	35.77
30011 - Air Traffic Control Specialist, Station (HFO)	(see 2)	24.66
30012 - Air Traffic Control Specialist, Terminal (HFO)	(see 2)	27.16
30021 - Archeological Technician I		18.13
30022 - Archeological Technician II		20.27
30023 - Archeological Technician III		25.11
30030 - Cartographic Technician		25.12
30040 - Civil Engineering Technician		19.04
30061 - Drafter/CAD Operator I		15.03
30062 - Drafter/CAD Operator II		16.81
30063 - Drafter/CAD Operator III		19.99
30064 - Drafter/CAD Operator IV		26.25
30081 - Engineering Technician I		15.71
30082 - Engineering Technician II		17.63
30083 - Engineering Technician III		20.27
30084 - Engineering Technician IV		24.96
30085 - Engineering Technician V		29.90
30086 - Engineering Technician VI		36.17
30090 - Environmental Technician		19.33
30210 - Laboratory Technician		19.91
30240 - Mathematical Technician		24.90
30361 - Paralegal/Legal Assistant I		16.54
30362 - Paralegal/Legal Assistant II		20.49
30363 - Paralegal/Legal Assistant III		25.07
30364 - Paralegal/Legal Assistant IV		30.33
30390 - Photo-Optics Technician		22.90
30461 - Technical Writer I		26.05
30462 - Technical Writer II		31.87
30463 - Technical Writer III		38.56
30491 - Unexploded Ordnance (UXO) Technician I		22.74
30492 - Unexploded Ordnance (UXO) Technician II		27.51
30493 - Unexploded Ordnance (UXO) Technician III		32.97
30494 - Unexploded (UXO) Safety Escort		22.74
30495 - Unexploded (UXO) Sweep Personnel		22.74
30620 - Weather Observer, Combined Upper Air Or Surface Programs	(see 3)	19.99
30621 - Weather Observer, Senior	(see 3)	20.83
31000 - Transportation/Mobile Equipment Operation Occupations		
31020 - Bus Aide		9.98
31030 - Bus Driver		15.52
31043 - Driver Courier		11.32
31260 - Parking and Lot Attendant		7.85

31290 - Shuttle Bus Driver	12.39
31310 - Taxi Driver	10.33
31361 - Truckdriver, Light	12.39
31362 - Truckdriver, Medium	14.19
31363 - Truckdriver, Heavy	17.82
31364 - Truckdriver, Tractor-Trailer	17.82
99000 - Miscellaneous Occupations	
99030 - Cashier	7.93
99050 - Desk Clerk	10.35
99095 - Embalmer	22.74
99251 - Laboratory Animal Caretaker I	9.70
99252 - Laboratory Animal Caretaker II	10.76
99310 - Mortician	22.69
99410 - Pest Controller	14.84
99510 - Photofinishing Worker	11.95
99710 - Recycling Laborer	11.26
99711 - Recycling Specialist	14.37
99730 - Refuse Collector	9.72
99810 - Sales Clerk	10.14
99820 - School Crossing Guard	8.48
99830 - Survey Party Chief	17.09
99831 - Surveying Aide	11.84
99832 - Surveying Technician	13.97
99840 - Vending Machine Attendant	9.87
99841 - Vending Machine Repairer	12.54
99842 - Vending Machine Repairer Helper	9.87

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: $4.02 per hour or $160.80 per week or $696.79 per month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

THE OCCUPATIONS WHICH HAVE NUMBERED FOOTNOTES IN PARENTHESES RECEIVE THE FOLLOWING:

1) COMPUTER EMPLOYEES: Under the SCA at section 8(b), this wage determination does not apply to any employee who individually qualifies as a bona fide executive, administrative, or professional employee as defined in 29 C.F.R. Part 541. Because most Computer System Analysts and Computer Programmers who are compensated at a rate not less than $27.63 (or on a salary or fee basis at a rate not less than $455 per week) an hour would likely qualify as exempt computer professionals, (29 C.F.R. 541. 400) wage rates may not be listed on this wage determination for all occupations within those job families. In addition, because this wage determination may not list a wage rate for some or all occupations within those job families if the survey data indicates that the prevailing wage rate for the occupation equals or exceeds $27.63 per hour conformances may be necessary for certain nonexempt employees. For example, if an individual employee is nonexempt but nevertheless performs duties within the scope of one of the Computer Systems Analyst or Computer Programmer occupations for which this wage determination does not specify an SCA wage rate, then the wage rate for that employee must be conformed in accordance with the conformance procedures described in the conformance note included on this wage determination.

Additionally, because job titles vary widely and change quickly in the computer industry, job titles are not determinative of the application of the computer professional exemption. Therefore, the exemption applies only to computer employees who satisfy the compensation requirements and whose primary duty consists of:

(1) The application of systems analysis techniques and procedures, including consulting with users, to determine hardware, software or system functional specifications;

(2) The design, development, documentation, analysis, creation, testing or modification of computer systems or programs, including prototypes, based on and related to user or system design specifications;

(3) The design, documentation, testing, creation or modification of computer programs related to machine operating systems; or

(4) A combination of the aforementioned duties, the performance of which requires the same level of skills. (29 C.F.R. 541.400).

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

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

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

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

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of $3.35 per week (or $.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A links to the Directory may be found on the WHD

home page at http://www.dol.gov/esa/whd/ or through the Wage Determinations On-Line (WDOL) Web site at http://wdol.gov/.

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

Conformance Process:

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

The process for preparing a conformance request is as follows:

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

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

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

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

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

6) The contractor informs the affected employees.

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

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

Human Health and Performance Contract (HHPC)

Total Compensation Plan

Attachment J-13

Total Compensation Plan

Attachment J-13, Total Compensation Plan, contains the contractor's description of their implementation approach to identify and discuss wages, salaries, and fringe benefits for professional employees and non-exempt service employees for both the prime and all major subcontractors as required by DRD HHPC-MGMT-07. This attachment incorporates the contractor's Total Compensation Plan submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

DD 254, Department of Defense Contract Security Classification Specification

Attachment J-14

DD 254, Department of Defense Contract Security Classification Specification

Attachment J-14, DD 254, Department of Defense Contract Security Classification Specification, contains the DD 254 that will be filled out by NASA upon contract award. The Offerors do not need to fill out this form. However, the Offererors shall discuss as part of their proposal (per the DRD HHPC-MGMT-01, Contract Management Plan) how they will meet the intent of the requirements stated in Sections 13 and 14 of the form.

DD Form 254

Upon contract award, the contractor shall work with the JS-Protective Services Division to ensure that appropriate personnel are cleared prior to contract start.

DEPARTMENT OF DEFENSE
CONTRACT SECURITY CLASSIFICATION SPECIFICATION

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

1. CLEARANCE AND SAFEGUARDING

a. FACILITY CLEARANCE REQUIRED ☒

b. LEVEL OF SAFEGUARDING REQUIRED ☒

2. THIS SPECIFICATION IS FOR: ***(X and complete as applicable)***			**3. THIS SPECIFICATION IS:** ***(X and complete as applicable)***		
	a. PRIME CONTRACT NUMBER			a. ORIGINAL *(Complete date in all cases)*	Date *(YYMMDD)*
	b. SUBCONTRACT NUMBER			b. REVISED *(Supersedes all previous specs)* — Revision No.	Date *(YYMMDD)*
	c. SOLICITATION OR OTHER NUMBER	Due Date *(YYMMDD)*		c. FINAL *(Complete Item 5 in all cases)*	Date *(YYMMDD)*

4. IS THIS A FOLLOW-ON CONTRACT? ☐ YES ☐ NO. If Yes complete the following

Classified material received or generated under *(Preceding Contract Number)* is transferred to this follow-on contract

5. IS THIS A FINAL DD FORM 254? ☐ YES ☐ NO. If Yes complete the following

In response to the contractor's request dated N/A , retention of the identified classified material is authorized for the period of N/A .

6. CONTRACTOR ***(Include Commercial and Government Entity (CAGE) Code)***

a. NAME, ADDRESS, AND ZIP CODE	**b. CAGE CODE**	**c. COGNIZANT SECURITY OFFICE** ***(Name, Address, and Zip Code)***
		DSS-Defense Security Service

7. SUBCONTRACTOR

a. NAME, ADDRESS, AND ZIP CODE	b. CAGE CODE	c. COGNIZANT SECURITY OFFICES *(Name, Address, and Zip Code)*

8. ACTUAL PERFORMANCE

a. LOCATION	b. CAGE CODE	c. COGNIZANT SECURITY OFFICE *(Name, Address, and Zip Code)*
NASA/Johnson Space Center 2101 NASA Parkway Houston, TX 77058-3696	N/A	N/A

9. GENERAL IDENTIFICATION OF THIS PROCUREMENT

10. THIS CONTRACT WILL REQUIRE ACCESS TO:	YES	NO	**11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:**	YES	NO
a. COMMUNICATIONS SECURITY (COMSEC) INFORMATION		X	a. HAVE ACCESS TO CLASSIFIED INFORMATION ONLY AT ANOTHER CONTRACTOR'S FACILITY OR A GOVERNMENT ACTIVITY	X	
b. RESTRICTED DATA		X	b. RECEIVE CLASSIFIED DOCUMENTS ONLY		X
c. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION		X	c. RECEIVE AND GENERATE CLASSIFIED MATERIAL		X
d. FORMERLY RESTRICTED DATA:		X	d. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE		X
e. INTELLIGENCE INFORMATION:			e. PERFORM SERVICES ONLY	X	
(1) Sensitive Compartmented Information (SCI)		X	f. HAVE ACCESS TO U.S. CLASSIFIED INFORMATION OUTSIDE THE U.S., PUERTO RICO, U.S. POSSESSIONS AND TRUST TERRITORIES		X
(2) Non-SCI		X	g. BE AUTHORIZED TO USE THE SERVICES OF DEFENSE TECHNICAL INFORMATION CENTER (DTIC) OR OTHER SECONDARY DISTRIBUTION CENTER		X
f. SPECIAL ACCESS INFORMATION		X	h. REQUIRE A COMSEC ACCOUNT		X
g. NATO INFORMATION		X	i. HAVE A TEMPEST REQUIREMENT		X
h. FOREIGN GOVERNMENT INFORMATION		X	j. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS	X	
i. LIMITED DISSEMINATION INFORMATION		X	k. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE		X
j. FOR OFFICIAL USE ONLY INFORMATION		X	l. OTHER *(Specify)*. SEE BLOCK 13 REMARKS		
k. OTHER *Specify)*		X			

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

☒ Direct ☐ Through *(Specify):*

To the Office of Communications, National Aeronautics and Space Administration, Washington, DC 20546, for review.

to the Directorate for Freedom of Information and Security Review, Office of the Assistant Secretary of Defense (Public Affairs)* for review.
*In the case of non-DoD User Agencies, requests for disclosure shall be submitted to that agency.

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

Performance of this contract will not involve the receipt, generation, and storage of classified information at the contractor's facility; therefore, classified material cannot be sent to the contractor under this contract. Access to classified information/areas will occur at the user agency NASA/JSC as being the primary location and other locations where the requirement is covered by the obligations specified in Section C of the basic contract document. Only U.S. citizens granted a final personnel security clearances are eligible for access to classified material. The contractor must meet and comply with the facility clearance requirements for TOP SECRET/SECRET (whichever is applicable) level clearances. In addition, must meet and maintain the industrial security requirements for access to classified information at the TOP SECRET/SECRET (whichever is applicable) level. This being in accordance with the National Industrial Security Program Operating Manual, DOD 5220.22-M, dated February 28, 2006 and other NASA/JSC security procedures and guidelines.

The period of performance is from Month/Day/Year, through Month/Day/Year. (When contract has been awarded)

Questions or request concerning clarification or interpretation regarding security requirements shall be directed to the NASA/JSC Industrial Security Specialist at 281-450-5161.

"THIS DD FORM 254 IS ISSUED FOR PRE-AWARD PURPOSES ONLY."

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

(a) National Industrial Security Program Operating Manual, DOD 5220.22-M, dated February 28, 2006; (b) JSC Security Handbooks, Manuals, Regulations, Instructions, and Directives (current editions as of the date of Contract Award), as well as any other applicable policies and procedures set forth within the Contract and as identified by NASA.

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

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

a. TYPED NAME OF CERTIFYING OFFICIAL	b. TITLE	c. TELEPHONE *(Include Area Code)*
Wayne Sings	Security Specialist	281-450-5161

d. ADDRESS *(Include ZIP Code)*
2101 NASA Parkway
Houston, Texas 77058

e. SIGNATURE

17. REQUIRED DISTRIBUTION

X	a. CONTRACTOR
☐	b. SUBCONTRACTOR
X	c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR
☐	d. U.S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION
☐	e. ADMINISTRATIVE CONTRACTING OFFICER
☐	f. OTHERS AS NECESSARY

Human Health and Performance Contract (HHPC)

Staffing and Critical Skills Plan

Attachment J-15

Staffing and Critical Skills Plan

Attachment J-15, Staffing and Critical Skills Plan, contains the contractor's approach to meeting the staffing requirements of the SOW. The Staffing and Critical Skills Plan is submitted with the contractor's proposal as approved by the government and in accordance with DRD HHPC-MGMT-04.

Human Health and Performance Contract (HHPC)

Configuration Management Plan

Attachment J-16

Configuration Management Plan

Attachment J-16, Configuration Management Plan, contains the contractor's approach to Configuration Management for the HHPC Contract. The Configuration Management Plan is submitted in accordance with DRD HHPC-BP-03, Configuration Management Plan. This attachment incorporates the contractor's Configuration Management Plan as approved by the Government.

Human Health and Performance Contract (HHPC)

Contract Work Breakdown Structure (WBS) and Dictionary

Attachment J-17

Contract Work Breakdown Structure (WBS) and Dictionary

Attachment J-17, Contract WBS and Dictionary, shall provide the framework for structuring the program implementation plans, establishing and tracking budgets, preparing schedules, developing work force and material estimates, preparing work authorization documents, and reporting contract performance as required by DRD HHPC-MGMT-02. This attachment incorporates the contractor's Contract WBS and Dictionary submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

Contract Management Plan

Attachment J-18

Contract Management Plan

Attachment J-18, Contract Management Plan, shall describe the contractor's organizational structure, contract management approach, and management systems that will be used to ensure technical, schedule, and cost performance as required by DRD HHPC-MGMT-01. This attachment incorporates the contractor's Contract Management Plan submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

Quality Plan

Attachment J-19

Quality Plan

Attachment J-19, Quality Plan, shall be prepared which identifies activities performed off-site of JSC to ensure quality products and services as required by DRD HHPC-SMA-01. This attachment incorporates the contractor's Quality Plan submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

External Customer Plan

Attachment J-20

External Customer Plan

Attachment J-20, External Customer Plan, shall describe the Contractor's multi-year approach for identifying, attracting and retaining external customers to JSC as required by DRD HHPC-MGMT-08.

Human Health and Performance Contract (HHPC)

Technical Innovation Proposed Contract Language (TIPCL)

Attachment J-21

Technical Innovation Proposed Contract Language (TIPCL)

Attachment J-21, Technical Innovation Proposed Contract Language (TIPCL) will include contract language to implement innovations submitted with the contractor's proposal as approved by the government.

Human Health and Performance Contract (HHPC)

Electrical, Electronic, and Electromechancial (EEE) Parts Plan

Attachment J-22

Electrical, Electronic, and Electromechancial (EEE) Parts Plan

Attachment J-22, EEE Parts Plan, shall define and document the contractor's requirements, system and implementation plan for controlling the selection, acquisition, traceability, testing, handling, packaging, storage and application of Electrical, Electronic and Electromechanical (EEE) Parts for flight and critical ground support equipment as required by DRD HHPC-SMA-02.

Human Health and Performance Contract (HHPC)

Installation Accountable IA Hardware

Attachment J-23

Installation Accountable Computer Hardware

A complete listing of Installation Accountable Computer Hardware is provided in a separate Microsoft Excel Spreadsheet, which is attached to this document. The file is entitled as follows:

1. J-23 Installation Accountable Computer Hardware

Human Health and Performance Contract (HHPC)

Installation Accountable Computer Software

Attachment J-24

Installation Accountable Computer Software

A complete listing of Installation Accountable Computer Software is provided in a separate Microsoft Excel Spreadsheet, which is attached to this document. The file is entitled as follows:

1. J-24 Installation Accountable Computer Software

Human Health and Performance Contract (HHPC)

Acronyms List

Attachment J-25

Acronyms List

Acronym	Meaning
AAALAC	Association for the Assessment and Accreditation of Laboratory Animal Care, Inc.
10HERD	Human Experimental and Research Data Records
10HIMS	Health Information Management System
3D	Three-Dimensional
4D	4th Dimension
A&C	Avionics and Communication
A/CO	Activation and Check Out
A/R or AR	As Required
A/S or A&S	Avionics and Software
ABCL	As-Built Configuration List
ABF	Anthropometry & Biomechanics Facility
ABIH	American Board of Industrial Hygiene
ACA	Associate Contractor Agreement
ACES	Advanced Crew Escape Suit
ACES	Agency Consolidated End-User Services
ACG	Alternative Compression Garment
ACGIH	American Conference of Governmental Industrial Hygienists
ACL	Acoustics Lab
ACLS	Advanced Cardiac Life Support
ACM	Asbestos Containing Materials
ACO	Administrative Contracting Officer
ACO	Activation and Checkout
ACTEX	Activated Carbon/Ion Exchange Unit
AD	Acoustic Dosimeter
ADD	Architecture Description Document
ADDR	Acoustic Dosimeter Data Receiver
ADL	Applicable Documents List
ADP	Acceptance Data Package
ADRWG	Ascent Debris Radar Working Group
AED	Automated External Defibrillator
AEH	Advanced Environmental Health
AEMS	Advanced ECG Monitoring System
AES	Advanced Exploration Systems
AEVA	Advanced Extravehicular Activity
AF	Air Force
AFIP	Air Force Institute of Pathology
AFT	Advanced Food Technology
AHF	Animal Holding Facility
AI	Action Item
AIB	ARED Instrumentation Box
AIDS	Acquired Immunodeficiency Syndrome
AIHA	American Industrial Hygiene Association
AIP	Analog Implementation Plan
ALARA	As Low As Reasonably Achievable
ALS	Advanced Life Support
ALSP	Advanced Life Support Pack
ALTEA	Anomalous Long Term Effects in Astronauts
AMA	American Medical Association
AMB	Aerospace Medical Board
AME	Aviation Medical Examiner
AME	Annual Medical Exams
AMERD	Astronaut Medical Evaluation Requirements Document
AMOS	Aircraft Maintenance and Operational Support Contract
AMP	Ambulatory Medical Pack
ANITA	Analyzing Interferometer for Ambient Air
AOD	Aircraft Operations Directorate
API	American Proficiency Institute
AQF	Astronaut Quarantine Facility
AQM	Air Quality Monitor
AQS	Air Quality Subgroup
AR	Augmented Reality
ARC	Ames Research Center
AREAS	Astronaut Radiation Exposure Analysis System
ARED	Advanced Resistive Exercise Device
ARF	Astronaut Rehabilitation Facility
ARGOS	Active Response Gravity Offload System
ARM	Applicable Requirements Matrix
ART	Anomaly Resolution Team

ASCAN	Astronaut Candidate
ASCP	American Society of Clinical Pathologists
ASCR	Astronaut Strength, Conditioning, and Rehabilitation
ASD	Avionics Systems Division
ASEM	Aviation Space and Environmental Medicine
ASET	Applied System Engineering Team
ASI	Italian Space Agency
ASG	Astronaut Spouses Group
ASMDB	Aerospace Medicine Dive Medicine Board
ASTM	American Society for Testing and Materials
ATLS	Advanced Trauma Life Support
ATP	Authority to Proceed
ATV	Automatic Transfer Vehicle
AVT	Acceptance Vibration Test
AWG	Acoustics Working Group
B9 (B09)	JSC Building 9
BC	Bioastronautics Contract
BCHB	Biomedical Console Handbook
BCRP	Biomedical Countermeasures & Research Project
BDC	Baseline Data Collection
BDCF	Baseline Data Collection Facility
BDRA	Biomedical Data and Reduction Analysis
BEIR	Biological Effects Ionizing Radiation
BFO	Blood Forming Organs
BH	JSC Procurement Office mail code
BHIC	Bose Headphones Integrated Cable
BHP	Behavioral Health and Performance
BIMCB	Business and Institutional Management Control Board
BIT	Building Inspection Tracking System
Bldg.	Building
BM	Benchmark
BME	Biomedical Engineer
Bmed	Behavioral Medicine
BML	Bone and Mineral Laboratory
BOD	Biological Oxygen Demand
BOE	Basis of Estimate

BP/ECG	Blood Pressure/Electrocardiogram monitor
BPS CM	Bioastronautics Planning System Configuration Management
BR	Bench Review
BR	Bed Rest
BRATS	Bed Rest Action Tracking System
BRB	Biosafety Review Board
BRCPB	Biomedical Research and Countermeasures Projects Branch
BR&ES	Biomedical Research and Environmental Sciences
BRP	Bed Rest Project
BS	Bachelor of Science
BSD	Biomedical Systems Division
BSHK	Biological Sample Handling Kit
b-TSC	backup Telescience Support Center
BTLS	Basic Trauma Life Support
BUSD	Brine and Urine Storage Device
C&A	Certification and Accreditation
C&DH	Command and Data Handling
C&N	Communication & Navigation
C&T	Communication and Tracking
C/L	Checklist
C3I	Command, Control, Communications, and Intelligence
C3PO	Commercial Crew & Cargo Program Office
CA	Flight Crew Operations Directorate
CA	Corrective Action
CAD	Computer Aided Design
CAM	Cost Account Manager
CAM	Control Account Manager
CAMSII	Calibration and Metrology Services II
CAOHC	Council on Accreditation for Occupational Hearing Conservation
CAOT	Cognizant Audit Office Template
CAP	College of American Pathologists
CAPCOM	Capsule Communicator
CARD	Constellation Architectural Requirements Document
CARD	Long Term Microgravity: A Mechanism for Investigating Mechanisms for Heart Disease
CAS	Cost Accounting Standards

CASEO	Cabin Air Separator For EVA Oxygen
CAT	Commercial Crew & Cargo Program Advisory Team
CATL	Coordination Action Tracking Log
CB	Control Board
CBCS	Computer Based Control System
CBL	Commercial Bills of Lading
CBPD	Continuous Blood Pressure Device
CBT	Computer Based Training
CCB	Change Configuration Board/Configuration Control Board
CCiCAP	Commercial Crew Integrated Capability
CCFP	Cerebral Cochlear Fluid Pressure
CCK	Contamination Cleanup Kit
CCM	Common Crew Monitoring
CCP	Crew Care Package
CCP	Configuration Control Panel
CCP	Commercial Crew Program
CCPK	Contamination Protection Kit
CD	Compact Disc
CD	Center Director
CDE	Crew Discretionary Event
CDM	Carbon Dioxide Monitor
CDMK	Carbon Dioxide Monitor Kit
CDP	Certification Data Package
CDR	Critical Design Review
CDR	Commander
CD-ROM	Compact Disc/Disk-Read-Only-Memory
CDT	Central Daylight Time
CE	Continuing Education
CEF	Change Evaluation Form
CETI	Change Evaluation Tracking Information
CEV	Crew Exploration Vehicle
CEVIS	Cycle Ergometer with Vibration Isolation System
CFE	Contractor Furnished Equipment
CFR	Code of Federal Regulations
CG	Center of Gravity
CGB	Collapsible Glove Box
CHATS	Contractor-Held Asset Tracking System

CHB	Console Handbook
CHeCS	Crew Health Care System
CHHIPS	Crew Health Hardware, Integration, & Program Support
CHI	Crew Health Index
CHIT	Abbreviation for Mission Action Request
CHR	Crew Health and Research
CHSIP	Commercial Human Systems Integration Processes
CHSIR	Commercial Human Systems Integration Requirements
CIB	Contractor Implementation Board
CIC	Clinical Information Center
CIL	Critical Items List
CIO	Chief Information Officer
CIRD	Common Interface Requirements Document
CISD	Critical Incident Stress Debriefing
CISD	Center Institutional Safety Support Contract
CITL	CHeCS Internal Transfer List
CliFFs	Clinical Findings Forms
CLCWA	Clear Lake City Water Authority
CLIMS	Clinical Laboratory Information Management System
CLIS	Clinical Laboratory Information System
CLU	Command and Logic Unit
CM	Configuration Management
CM	Crew Member
CMC	Cargo Mission Contract
CMC	Configuration Management Control
CME	Coronal Mass Ejection
CME	Continuing Medical Education
CMIS	Crew Medical Information System
CMMI	Capability Maturity Model® Integration
CMO	Crew Medical Officer
CMORD	Commercial Medical Operations Requirements Document
CMP	Configuration Management Plan
CMR	Cell & Molecular Research
CMRS	Crew Medical Restraint System
CMS	Countermeasures System
CMSS	Countermeasures System Software

CMT	Critical Mission Tasks
CO	Carbon Monoxide
CO	Contracting Officer
CO_2	Carbon Dioxide
COB	Close of Business
CoC	Certificate of Compliance
COD	Center Operations Directorate
COECI	Center Of Excellence for Collaborative Innovation
CoER	Certification of EVA Readiness
CoF	Construction of Facilities
CoFR	Certificate of Flight Readiness
CONUS	Continental United States
COP	Community of Practice
COSS	Crew On-orbit Support System
COSS	Center Operations Support Services
COSTEP	Comprehensive Suprathermal and Energetic Particle Analyzer
COTR/COR	Contracting Officer's Technical Representative/Contracting Officer's Representative
COTS	Commercial Off-the Shelf
COTS	Commercial Orbital Transportation System
CPC	Certification Product Contract
CPC	Commercial Program Contract
CPCB	Crew Procedures Control Board
CPD	Crew Passive Dosimeter
CPHS	Committee for the Protection of Human Subjects
CPL	Cardiopulmonary Laboratory
CPR	Cardiopulmonary Resuscitation
CPT	Current Procedural Terminology
CR	Change Request
CR	Cost Reimbursable
CRAVEII	Crew, Robotics, Avionics and Vehicle Equipment Contract
CRES	Contingency Resistive Exercise System
Crew	Astronauts and Cosmonauts
CRF	case report forms
CRR	Critical Readiness Review
CRS	Chief Radiation Scientist
CS	Crew Surgeon

CS	Civil Servant
CSA	Canadian Space Agency
CSA	Customer Service Agreement
CSA	Compound Specific Analyzer
CSA-CP	Compound Specific Analyzer for Combustion Products
CSA-O2	Compound Specific Analyzer – Oxygen
CSPE	Colorimetric Solid Phase Extraction
CSR	Crew Station Review
CSSE	Constellation Space Suit Element
CSWG	Computer Software Working Group
CTB	Cargo Transfer Bag
CTCB	Crew Training Control Board
CTSD	Crew and Thermal Systems Division
CTV	Commercial Transport Vehicle
CTWG	Crew Time Working Group
CUFC	Collapsible US Food Containers
CV	Cardiovascular
CVL	Cardiovascular Laboratory
CWC	Contingency Water Container
CWD	Contingency Water Dispenser
CWI	Common Work Instruction
CWQMK	Colorimetric Water Quality Monitoring Kit
CWWDF	Condensate Waste Water Dump Filter
CZAP	Center Zoned Architecture Program
d	day
D	Deliverable
DA	Mission Operations Directorate
DAQ	Dietary Assessment Questionnaire
DAR	Data At Rest
DAU	Data Avionics Unit
DB	Data Base
DBA	Database Administrator
DBLS	Daily Bone Loading Stimulus
DC-9 or C-9	NASA low gravity aircraft
DCAA	Defense Contract Audit Agency
DCB	Directorate Control Board
DCMA	Defense Contract Management Agency
DCO	Data Collection Overview
DCR	Design Certification Review

DCS	Decompression Sickness
DCS	Deputy Crew Surgeon
DCT	Data Collection Tool
DDMS	Design Data Management System
DEA	Drug Enforcement Agency
DeVinCi	Defense Venture Capitalist Initiation
DevTool	Developer's Tool
DFRC	Dryden Flight Research Center
DGB	Disposable Glove Bag
DHS	Department of Homeland Security
DI	Expeditionary Vehicle Systems Division (MOD)
DIO	Design Integration Office
DIPT	Discipline Integrated Product Team
DISA	Defense Information Systems Agency
DLO	Directorate Level Organization
DMC	Dynamic Manipulator Composite
DMO	Data Management Overview
DMP	Data Management Plan
DMSD	Dimethylsilanediol
DNIF	Duties Not Including Flight
DO	Doctor of Osteopathy
DOD	Department of Defense
DOL	Department of Labor
DOR	Director of Operations Star City, Russia
DOT	Department of Transportation
DPMC	Directorate Program Management Council
DPOAE	Distortion Product Otoacaoustic Emissions
DR	Discrepancy Report
DR	Disaster Recovery
DR	Design Review
DR/MRR	Discrepancy Report/Material Review Record
DRATS	Desert Research and Technology Studies
D-RATS	Desert Research and Technology Studies
DRC	Dynamic Reaction Cell
DRD	Data Requirements Description
DRD	Data Requirements Document
DRD	Data Requirements Deliverable

DRL	Data Requirements List
DRL#	Data Requirements List number
DRP	Directed Research Project
DRPP	Directed Research Project Plan
DSA	Data Submission Agreement
DSA	Data Sharing Agreement
DSA	Data Submission Agreement
DSNE	Design Specification for Natural Environments
DSO	Detailed Supplementary Objective
DSR	Daily Summary Reports
DT	Mission Operations Directorate, Space Flight Training Division
DTO	Detailed Technical Objective
DTR	Display Technical Representative
DTT	Drug Tolerance Testing
DUE	Drug Utilization Evaluation
DVD	Digital Video Disc
DVO	Detailed Verification Objectives
DXA	Dual Energy X-Ray Absorptiometry
EA	Engineering Directorate
EAP	Employee Assistance Program
ea.	Each
eTRIP	expedition specific Training Requirements Integration Panel
EAMD	Exploration Analog and Mission Development
EARD	Exploration Architecture Requirements Document
EB	Engineering Directorate, Biomedical Systems Division Office
EBIT	End-to-End Berthing Integration Team
EBM	Evidence-Based Medicine
EBWG	Evidence base Working Group
EC	Mail Code for Crew and Thermal Systems Division
ECG	Electrocardiogram, -graph
ECLSS	Environmental Control and Life Support System
ECOMS	Executive Committee of the Medical Staff
ECP	Exercise Countermeasure Project
ECR	Engineering Change Request
eCRF	electronic case report forms

ED	Experiment Document
EDAC	EVA Design Analysis Cycle
EDCC	Engineering Drawing Control Center
EDMS	Electronic Document Management System
EDOSE	Electron Dose
EDRS	Engineering Drawing Review System
EDU	Engineering Development Unit
EECOM	Electrical, Environmental, Consumables Manager
EEE	Electrical, Electronic, and Electromechanical
EENT	Eye, Ear, Nose and Throat Subpack
EFL	Electronic Flight Log
EHL	Environmental Health Laboratory
EHS	Environmental Health System
EIA	Enzyme Immonoassay
EIS	End Item Specification
EKE	Exercise Kinetics Experiment
ELISA	Enzyme-Linked Immunosorbent Assay
ELS	Emergency Landing Sites
EMI	Electromagnetic Interference
EMR	Electronic Medical Record
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
EMU	Extravehicular Mobility Unit
ENG	Engineering
ENGO	Exploration Needs, Goals, and Objectives
EOC	Emergency Operations Center
EP	Equivalent Person
EP	Mail Code for Energy Systems Division
EPA	Environmental Protection Agency
EPAS	Earth to Orbit Vehicle Payload Activity Summary
EPCRA	Emergency Planning and Community Right-to-know Act
EPIC	Engineering Products Integration Contract
EPL	Environmental Physiology Laboratory
EPM	Excel Pricing Model
EPM	Electronic Pricing Model
EPP	Emergency Preparedness Plan
EPSCoR	Experimental Program to Stimulate Competitive Research
EPSP	EVA Physiology, Systems, and Performance
ER	Software, Robotics, and Simulation Division
ERD	Element Requirements Document
ERT	Emergency Response Team
ES	Mail Code for Structural Engineering Division
ESA	European Space Agency
ESB	Environmental Sciences Branch (SK4)
ESC	Executive Safety Committee
ESD	Energy Systems Division
ESEP	EVA Systems Engineering Panel
ESI-IMS	Electrospray Ionization – Ion Mobility Spectroscopy
ESPO	EVA System Project Office
ESTA	Energy System Test Area
ETA	Environmental Test Article
ETV	Electrothermal Vaporization
EUE	Experiment Unique Equipment
EV	Avionic Systems Division mail code
EVA	Extravehicular Activity
EV-CPDS	Extravehicular – Charged Particle Directional Spectrometer
EVA PCB	EVA Systems Control Board
EVA SCB	EVA Suit Control Board
EVAC	Evacuation
EV-CPDS	Extravehicular Charged Particle Directional Spectrometer
ExCHIT	Exploration Crew Health Integration Team
EXL	Exercise Physiology Laboratory
ExMC	Exploration Medical Capabilities
EXP	Experienced
ExPC	Exercise Physiology and Countermeasures
EXPRESS	Expedite the Processing of Experiments to Space Station
EYSP	Execution Year Spend Plan
FA	Feasibility Assessment
FAA	Federal Aviation Administration
FACB	Flight Activities Control Board
FAP	Flight Analogs Project

FAPIIS	Federal Awardee Performance and Integrity Information System
FAP CCP	Flight Analogs Project Configuration Control Panel
FAR	Federal Acquisition Regulation
FARU	Flight Analogs Research Unit
FAS	Financial Accounting Standards
FAT	Fabrication and Test
FBMS	Financial and Business Management Services Contract
FCE	Flight Crew Equipment
FCE-DR	Flight Crew Equipment Discrepancy Report
FCEWG	Flight Crew Equipment Working Group
FCI	Flight Crew Integration
FCOD	Flight Crew Operations Directorate
FCR	Flight Control Room
FCS&I	Flight Crew Systems and Integration
FD	Flight Day
FDA	Food and Drug Administration
FDF	Flight Data File
FDO	Fee Determination Official
FDOC	Facilities Development and Operations Contract
FEPC	Flight Equipment Processing Contract
FFA	Functional Fitness Assessment
FFP	Firm Fixed Price
FFQ	Flight Food Questionnaire
FFQ	Food Frequency Questionnaire
FHD	Flight Hardware Department
FHT	Flight Hardware & Technology Group
FI	Functional Impairments
FIAR	Failure Investigation Action Report
FIG	Focused Investment Group
FIPS	Federal Information Processing Standards
FIT	Failure Investigation Team
FIT	Flight Investigation Teams
FLUKA	Flukuierende Kaskade (German: fluctuating cascade)
FMC	Flight Medicine Clinic
FMD	Financial Management Division
FMEA	Failure Modes and Effects Analysis
FMK	Formaldehyde Monitoring Kit

FMORR	Final Medical Operations Readiness Review
FMT	Field Medical Training
FOB	Free On Board
FOI	Factors of Influence
FOIA	Freedom of Information Act
FOR	Flight Operations Review
FPIP	Flight Planning Integration Panel
FPRA	Forward Pricing Rate Agreement
FRCB	Flight Rules Control Board
FRD	Functional Requirements Document
FRM	Form
FRR	Flight Readiness Review
FS	Flight Surgeon
FSE	Flight Support Equipment
FSO	Family Support Office
FSP	Family Support Plan
FTE	Full-time Employee
FTE	Full Time Equivalent
FTP	File Transfer Protocol
FTSOD	Flight Test and Supplementary Objectives Document
FTT	Functional Task Test
FTWG	Flight Test Working Group
FUR	Facility Utilization Request
FWM	Fine Water Mist
FY	Fiscal Year
G or g	Gravity
GAC	General Clinical Research Center (GCRC) Advisory Committee
GAO	Government Accountability Office
GASMAP	Gas Analyzer System for Metabolic Analysis of Physiology
GAT	G&A (General and Administrative) Template
GBL	Government Bills of Lading
GC/DMS	Gas Chromatograph / Differential Mobility Spectrometer
GC/MS	Gas Chromatograph/Mass Spectrometer
GCAR	Government Certification and Approval Request
GCRDOSE	Galactic cosmic ray dose

GCTC	Gagarin Cosmonaut Training Center
GDS	Ground Data Services
GE	General Electric Company
GFCS	Government-Furnished Computer Software
GFE	Government Furnished Equipment
GFY	Government Fiscal year
GGR&C	Generic Groundrules, Requirements, and Constraints
GI	gastrointestinal
GIDEP	Government-Industry Data Exchange Program
GMIP	Government Mandatory Inspection Point
GN&C	Guidance Navigation & Controls
GO	Ground Operations
GOES	GN&C Orbital Environment Simulation
GONG	Global Oscillation Network Group
GPOD	Global Point of Departure
GPS	Global Positioning System
GR&C	Ground Rules and Constraints
GRAF	Graphics Research and Analysis Facility
GRC	Glenn Research Center
GRE	Government Resources Estimate
grms	gravity root mean square
GSC	Grab Sample Container
GSCB	Ground Segment Control Board
GSE	Ground Support Equipment
GSP	Ground Support Personnel
GUI	Graphical User Interface
GXT	Graded Exercise Test
H&HF	Habitability & Human Factors
H/W	Hardware
HA	Hazard Analysis
HAC	Human Adaptation and Countermeasures
HACCP	Hazard Analysis and Critical Control Point
HACD	Human Adaptations and Countermeasures Division
HASP	HMS Ancillary Supply Pack
HATS	Hazard Abatement Tracking System
HAZCOM	Hazard Communication

HazMat	Hazardous Material
HAZWOPER	Hazardous Waste and Emergency Operations
HBZ	HUBZone Small Business Concerns
HDBK	Handbook
HDD	Hardware Design Document
HDEV	High Definition Earth Viewing
HEF	Horizontal Exercise Fixture
HEFD	Habitability & Environmental Factors Division
HEOMD	Human Exploration and Operations Mission Directorate
HERA	Human Exploration Research Analog
HERS	Health Environmental Resource System
HESM	Human Engineering Structural Mock-up
HF	Human Factors
HFE	Human Factors Engineering
HFES	Human Factors Engineering Society
HFIT	Human Factors Implementation Team
HFM	High Fidelity Mockup
HGD	Hand Grip Device
HHC	Human Health Countermeasures
HHCPE	Human Health Countermeasures Program Element
HHFB	Habitability and Human Factors Branch
HHIMS	Human Health and Institutional Management Support
HHP	Human Health and Performance
HHPC	Human Health and Performance Contract
HHPD	Human Health and Performance Directorate
HIDH	Human Integration Design Handbook
HIPPA	Health Information Portability Protection Act
HISS	Humans in Space Symposium
HIT	Hazard Inspection Team
HITT	HMS Inventory Tracking Tool
HLR	Human Lunar Return
HMP	Houghton Mars Project
HMS	Health Maintenance System
HMST	Hazardous Materials Summary Table
HMTA	Health and Medical Technical Authority

HOD	Hardware Operations Document
HOSC	Huntsville Operations Support Center
HPDP	Human Performance Data Project
HPK	Hearing Protection Kit
HPLC	High Pressure Liquid Chromatography
HPLC	High Performance Liquid Chromatography
HPSP	Health Professions Scholarship Program
HQ	NASA Headquarters
HR	Hazard Report
hr	hour
HRCP	Human Rating Certification Package
HRD	High Rate Dosimeter
HRF	Human Research Facility
HRF	Health Related Fitness
HRFP	Health Related Fitness Program
HRI	Human-Robot Interaction
HRM	Heart Rate Monitor
HRMRB	Human Research Multi-lateral Review Board
HRP	Human Research Program
HRPCB	Human Research Program Control Board.
HRR	Human Research Roadmap
HS	Human Systems
hs-CRP	high sensitivity C-Reactive Protein
HSI	Human Systems Integration
HSED	Human Systems and Engineering Development Division
HSIG	Human Systems Integration Group
HSIR	Human System Integration Requirements
HSIS	Human Systems Integration Standard
HSIT	Human Systems Integration Team
HSP	Health Stabilization Program
HSPD	Homeland Security Presidential Directive
HSRB	Human System Risk Board
HTSF	Human Test Subject Facility
HTV	H-II Transfer Vehicle
HuSys	Human-to-System Interface
HVR	Hardware Verification Review
HW	Hardware

HYTHIRM	Hypersonic Thermodynamic Infrared Measurements
HZETRN	HZE transport computer code
IA	Information Architecture
IBA	Immunology/Biochemical Analysis
IAC	Initial Assessment of Criticality
IACUC	Institutional Animal Care and Use Committee
IAIO	Information Architecture, Information Operations
IASM	Introduction to Aerospace Medicine Summer Short Course
IAW	In Accordance With
IBMP	Institute of Biomedical Problems
ICATT	ISS Command and Telemetry Team
ICB	Informed Consent Briefing
ICD	Interface Control Document
ICD-9-CM	International Classification of Diseases, Ninth Revision, Clinical Modification
ICH	Intracranial Hypertension
ICP	Intracranial Pressure
ICP	Interface Control Plan
ICP-MS	Inductively Coupled Plasma – Mass Spectrometer
ICPR	Initial Constellation Program Review
ICS	Incident Command System
ICV	Integrated Cardiovascular
ICWC	Iodine Compatible Water Container
ID	Identification
IDAC	Integrated Design Analysis Cycle
IDAG	Integrated Display and Graphics Standards
IDD	Interface Definition Document
IDIQ	Indefinite Delivery Indefinite Quantity
IDLH	Immediately Dangerous to Life and Health
IdMAX	NASA Identity Management and Account Exchange
IDRD	Increment Definition and Requirements Document
IDS	Intrusion Detection System
IDTS	Integrated Daily Testing Schedule
IE	Interface Engine
IFEP	In-Flight Examination Protocol
IFI	In-Flight Investigation

IFM	In-Flight Maintenance
IGA	Intergovernmental Agreement
IGDS	In Flight Gas Delivery System
IH	Industrial Hygiene
IHA	Integrated Hazard Analysis
IHRCWG	International Human Research Complement Working Group
IIRD	Integrated Increment Requirements Document
IKA	Intubation Kit/Airway
IL	Immunology Laboratory
ILMC	IMM List of Medical Conditions
ILSRA	International Life Sciences Research Announcement
IM	Increment Manager
IMAK	ISS Medical Accessory Kit
IMC	Increment Management Center
IMCOH	ISS Management Center Handbook
IMM	Integrated Medical Model
IMMT	ISS Mission Management Team
IMORR	Initial Medical Operations Readiness Review
IMP	Integrated Master Plan
IMS	Inventory Management System
IMS	Integrated Master Schedule
IMT	Increment Management Team
IND	Investigational New Drug
IP	International Partner
IP	Internet Protocol
IPD	Integrated Protocol Document
IPE	Increment Payload Engineer
IPLAT	ISS Payload Label Approval Team
IPOM	ISS Portable Oxygen Monitor
IPT	Integrated Product Team
iRATS	Integrated Resistive and Aerobic Training Study
IRB	Institutional Review Board
IRD	Information Resources Directorate
IRD	Interface Requirements Document
IRIS	Incident Reporting and Information System
IRF	Issue Resolution Facility
IRMA	Integrated Risk Management Application

IRMA	ISS Risk Management Application
IRP	Integrated Research Plan
IRTS	Imagery Request Tracking System (IRTS)
ISAB	Information Systems Architecture Branch
ISCT	IDIQ Summary Cost Template
ISIL	ISS Systems Integration Lab
ISIS	International Subrack Interface Standard
ISO	International Standards Organization
ISP	Integrated Systems Performance
ISPR	International Standard Payload Rack
ISR	Individual Subcontracting Report
ISS	International Space Station
ISSMP	International Space Station Medical Projects
ISSP	International Space Station Program
IST	Integrated Suit Test
ISW	Industrial Solid Waste
IT	Information Technology
IT	Internet Technology
IT&V	Integration, Test, and Validation/Verification
ITA	Independent Technical Authority
ITA	Internal Task Agreement
ITAMS	Information Technology and Multimedia Services
ITCB	International Training Control Board
ITCS	Internal (Integrated) Thermal Control System
ITPP	Information Technology Planning Panel
ITS	Information Technology System
ITS-CRC	Institute for Translational Sciences – Clinical Research Center
IV	Intravenous
IVA	Intravehicular Activity
IV-CPDS	Intra Vehicular Charged Particle Directional Spectrometer
IVCWG	Internal Volume Configuration Working Group
IVD	Intervertebral Disc
IVP	Integrated Verification Planning
IV-TEPC	Intra Vehicular Tissue Equivalent Proportional Counter
IWG	Investigator Working Group

IZONE	NASA Plan for implementing intranet zoning
J30	JSC Building 30
JAXA	Japanese Aerospace Exploration Agency
JEM	Japanese Experiment Module
JF	JSC Form
JFRED	JSC Facilities Review Database
JHB	JSC Handbook
JIT	Just In Time
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JCCT	Joint Cargo Certification Team
JETS	JSC Engineering, Technology and Science Contract
JMI	JSC Management Instruction
JMOIP	Joint Medical Operations Implementation Plan
JOP	Joint Operations Panel
JPD	JSC Policy Directives
JPD	JSC Procedural Document
JPG	JSC Policies and Guidelines
JPL	Jet Propulsion Laboratory
JPR	JSC Procedural Requirements
JPR	Joint Program Review
JSC	Johnson Space Center
JSAT	JSC Safety Action Team
JSL	Joint Station LAN
JUP	Joint Utilization Plan
JWI	JSC Work Instruction
KSC	Kennedy Space Center
L	Launch
LADTAG	Lunar Airborne Dust Toxicity Advisory Group
LAFS	Lunar Analog Feasibility Study
LAPS	Lunar Analog Pilot Study
LaRC	Langley Research Center
LASO	Look Ahead/Strategic Outlook
LBNP	Lower Body Negative Pressure
LCCR	Lunar Capabilities Concept Review
LCG	Liquid Cooling Garment
LEO	Low Earth Orbit
LES	Launch and Entry Suit

LET	Linear Energy Transfer
LETF	Lighting Environment Test Facility
LIF	Launch Integration Facility
LIMS	Laboratory Information Management System
LIS	Laboratory Information System
LLC	Limited Liability Corporation
LLIL	Limited-Life Items List
LOCL	Loss of Crew Life
LOE	Level of Effort
LOI	Letter of Invitation
LM	Lockheed Martin
LMMS	Lockheed Martin Mission Services
LOE	Level of Effort
LOI	Letter of Invitation
LOSP	Landing Operations Support Panel
LOX	Liquid Oxygen
LP	Licensed Paramedic
LPA	Launch Package Assessment
LPO	Lipid Peroxide
LRODS	Launch, Return, and On-Orbit Data Set
LS	Life Sciences
LSAH	Longitudinal Study of Astronaut Health
LSAH-R	LSAH Repository
LSCR	Lunar Surface Concept Review
LSDA	Life Sciences Data Archive
LSDS	Life Sciences Data Services
LSDW	Life Sciences Data Warehouse
LSRLs	Life Sciences Research Laboratories
LSS	Lunar Surface System
LSSO	Lunar Surface System Office (LSSO)
LSSP	Lunar Surface Systems Project
LTBR	Long-term bed rest
LVA	Launch Vehicle Assessment
LWR	Linear Weighted Regression
M	Milestone
MA	Management Approach
Maint	Maintenance
MA/ITP	Multilateral Advanced/Increment Training Plan
MAK	Medical Accessory Kit

MAR	Monthly Activity Report
MARES	Muscle Atrophy Research and Exercise System
MAS	Microbial Air Sampler
MAT	Medical Assessment Test
Max	Maximum
MBL	Micro Biology Lab
MBOD	Multilateral Biomedical Operations Panel
MBOP	Multilateral Biomedical Operations Panel
MCC	Mission Control Center
MCC-H	Mission Control Center (Houston)
MCC-M	Mission Control Center –Moscow
MCHB	Medical Console Handbook
MCOP	Multilateral Crew Operations Panel
MCV	Microbial Check Valve
MD	Doctor of Medicine
MDA	Malondialdehyde Analysis
MDI	Michaelson Doppler Imager
Med	Medical
MED	Medical Evaluation Document
MEDB	Medical Evaluation Document Volume B
MEDIUM	Microfluidic Extraction of DNA for Identification of Unknown organisms in Microgravity
MEME	Mission Extended Medical Enterprise
MER	Mission Evaluation Room
MF	Multifiltration
MGMT	Management
MIC	Mission Integration Coordinator
MICU	Mobile Intensive Care Unit
MIDAS	Mission Integration Database Application System
MIG	Mission Integration Group
MIHCS	Medical Informatics and Health Care Systems
MIL-	Military
MIL-STD	Military Standard
Mini-TOCA	Miniaturized Total Organic Carbon Analyzer
MIOCB	Mission Integration and Operations Control Board
MIP	Mission Information Packet

MIPD	Multi-Increment Planning Document
MIT	MMOP Integration Team
MITAC	Medical Informatics Technical Application Consortium
MITWG	Medical Information and Technology Working Group
ML	Microbiology Laboratory
MM	Mission Manager
MMIS	Mission Medical Information System
MMOP	Multilateral Medical Operations Panel
MMOP-NWG	Multilateral Medical Operations Panel-Nutrition Working Group
MMPB	Multilateral Medical Policy Board
MMR	Mission Medical Repository database
MMR	Monthly Management Review
MMSEV	Multi Mission Space Exploration Vehicle
MMT	Mission Management Team
mo	month
MOA	Memorandum of Agreement
MOB	Medical Operations Board
MOD	Mission Operations Directorate
MOD	Medical Officer of the Day
MOG	Medical Operations Group
MORD	Medical Operations Requirements Document
MORR	Medical Operations Readiness Review
MOSIP	Medical Operations Support Implementation Plan
MOU	Memorandum of Understanding
MPCB	Multilateral Payload Control Board
MPCV	Multi-Purpose Crew Vehicle
MPLM	Multi-Purpose Logistics Module
MPSR	Multipurpose Support Room
MR	Manifest Request
MR	Move Request
MR	Medical Requirement
MRCAR	Middeck Requirements Change Assessment Reports
MRF	Microbial Removal Filter
MRI	Magnetic Resonance Imaging
MRICB	Multilateral Research Integration Control Board
MRID	Medical Requirements Integration Document

MRO	Medical Review Officer
MS	Master of Science
MS	Mass Spectrometer
MSCL	Measurement Standards and Calibration Laboratory
MSCP	Mission Systems Control Board
MSDS	Material Safety Data Sheet
MSFC	Marshall Space Flight Center
MSHEWG	Medical Standards & Health Evaluation Working Group
MSI	Minority Serving Institutions
MSL	Medical Simulation Lab
MSMB	Multilateral Space Medical Board
MSOAM	Medical Student Orientation to Aerospace Medicine
MSOC	Mission Support Operations Contract
MST	Minor Subcontract Pricing Template
MSWG	Mechanical Systems Working Group
MTBF	Mean Time Between Failures
MTE	Measuring and Test Equipment
MTLO	Moscow Technical Liaison Office
N/A or NA	Not Applicable
N_2	Nitrogen
NAC	National Agency Check
NACB	Network Access Control Board
NAICS	North American Industry Classification System
NAMRL	Naval Aerospace Medical Research Laboratory
NAR	Non Advocate Review
NASCA	NASA Cataract Study
NASA	National Aeronautics and Space Administration
NBL	Neutral Buoyancy Laboratory
NBL	Nutritional Biochemistry Laboratory
NCHP	National Center for Human Performance
NCRP	National Council on Radiation Protection
NDS-R	Nutrition Data System for Research
NEEMO	NASA Extreme Environment Mission Operations
NELAC	National Environmental Laboratory Accreditation Committee
NELAP	National Environmental Laboratory Accreditation Program

NEO	Near Earth Object
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NESC	NASA Engineering and Safety Center
NFS	NASA FAR Supplement
NGL	Next-Generation Laptop
NGU	Next Generation Ultrasound
NGUVPC	Next Generation Ultrasound Video Power Converter
NH_4	Ammonia
NHHPC	NASA Human Health and Performance Center
NHTSA	National Highway Traffic Safety Administration
NIH	National Institute of Health
NIOSH	National Institute for Occupational Safety and Health
NIPR	NASA Interdepartmental Purchase Request
NIR	Non-ionizing Radiation
NISN	NASA Integrated Services Network
NIST	National Institute of Standards and Technology
NITROX	Nitrogen-Oxygen
NLR	Non-Labor Resources
NLT	No Later Than
NMI	NASA Management Instruction
NML	Nutrition Metabolic Laboratory
NMS	Nutrition Metabolic Section
No.	Number
NOAA	National Oceanic and Atmospheric Administration
NOFBX	Nitrous Oxide Fuel Blend
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NRA	NASA Research Announcement
NRC	Nuclear Regulatory Commission
NRF	National Resource Framework
NSBRI	National Space Biomedical Research Institute
NSF	National Science Foundation
NSRL	NASA Space Radiation Laboratory
NSS	Neurosciences Section
NSSC	NASA Shared Services Center
NSTS	National Space Transportation System

NT	Safety and Mission Assurance, Quality and Flight Equipment Division
NTE	Not to Exceed
NTReS	Tissue Regeneration System
NTSB	National Transportation Safety Board
NTX	N-telopeptide crosslink
NV	No Version
NWG	Nutrition Working Group
NWRA	North West Research Association
NxPCM	Non-exercise Physiological Countermeasures
O&G	Oil & Grease
O2	Oxygen
OA	Operations Assessment
OB	ISS Program Vehicle Office
OBSS	Orbiter Boom Sensor System
OCA	Orbiter Communications Adapter
OCA	Oxygen Compatibility Assessment
OCHMO	Office of the Chief Health and Medical Officer
OCI	Organizational Conflicts of Interest
OCR	Operational Change Request
OCT	Optical Coherence Tomography
OCSO	Organizational Computer Security Officer
OD	ISS Program Avionics & Software Office
ODF	Operations Data File
OE	Operations Evaluation
OHO	Occupational Health Office
OIP	Operations Implementation Plan
OFI	Offeror Fill-In
OGS	Oxygen Generation System
OGT	Off Gas Test
OHB	Occupational Health Branch (SD3)
OHPD	Operations Habitability Process Document
OHT	Overhead Template
OIP	Operations Implementation Plan
OIWG	Operations Integration Working Group
OJT	On the Job Training
OLGA	Optical Life Gas Analyzer
OLTARIS	OnLine Tool for the Assessment of Radiation In Space

OMB	Office of Management and Budget
OMC	Occupational Medicine Clinic
O-OHA	On-Orbit Hearing Assessment
OPAR	Outstanding Performance and Achievement Recognition
OpNom	Operations Nomenclature
OpPsy	Operational Psychology
Ops	Operations
OpsHab	Operational Habitability
ORID	Occupational Requirements Integration Document
ORR	Operational Readiness Review
ORT	Operations Readiness Test
ORU	On-Orbit Replacement Unit
OS	Operating System
OSL	Outside Laboratory
OSHA	Occupational Safety & Health Administration
OTL	Operations Team Lead
P&T	Pharmacy & Therapeutics Committee
P.E.	Professional Engineer
PABF	Precision Air Bearing Facility
PACS	Picture Archiving & Communications System
PAM	Photoacoustic Analyzer Module
PAO	Public Affairs Office
PAR	Payload Anomaly Report
PaRIS	Passive Rack Isolation System
PAT	Pressurized Automated Tester
PAT	Procedural Authoring Tool
PAT	Proficiency Analytical Test
PAU	Power Avionics Unit
PC	Personal Computer
PC	Primary Contact
PCAI	Power, Communications, Avionics and Informatics
PCB	Polychlorinataed Biphenyl
PCB	Payload Control Board
PCDB	Patient Condition Database
PCM	Pressurized Cargo Module
PCN	Page Change Notice
PCR	Product Certification Review

PDA	Personal Digital Assistant
PDA	Pre-Delivery Acceptance
PDF	Portable Document Format
PDK	Passive Dosimetry Kit
PDL	Payload Data Library (MSFC database)
PDL	Payload Development Lab (B9)
PDR	Preliminary Design Review
PDSS	Payload Data Select Switch
PE	Project Engineering
PEB	Performance Evaluation Board
PEMS	Percutaneous Electrical Muscle Stimulator
PEN	PIG enclosure
PERT	Portable Environment for Rack Testing
PFC	Private Family Conference
PFD	Pinch Force Dynamometer
PFE	Portable Fire Extinguisher
PFM	Pulmonary Function Module
PFS	Pulmonary Function System
PFU	Protoflight Unit
PGDS	Portable Gas Delivery System
PGP	Pretty Good Privacy
PGS	Pressure Garment Subsystem
PHH	Personal Hygiene Hose
PI	Principal Investigator
PIA	Pre-Installation Acceptance
PIG	Pressurized Inhalation Gases
PIM	Payload Integration Manager
PIMS	Payload Integration Management System
PIRN	Payload Internal Review Notice
PIRN	Preliminary Interface Revision Notice
PIRN	Program Interface Revision Notice
PIT	Phase-In Template
PIU	Power Interface Unit
PJ	Para-rescue Specialist
PKI	Public Key Infrastructure
PL	Payload
PLN	Plan
PLRP	Pavilion Lake Research Project
PLSS	Portable Life Support System

PM	Project Manager
PM	Process Model
PMC	Private Medical Conference
PMI	Permanently Missing Information
PMIT	Payload Mission Integration Team
PMO	Program Management Office
PMP	Program Management Plan
PMR	Project Management Review
PMWG	Post-Mission Working Group
PMZ	Promethazine
POA&M	Plan Of Actions and Milestones
POC	Point of Contact
POGO	Partial Gravity Simulator
POH	Payload Operations Handbook
POIC	Payload Operations and Integration Center
POIF	Payload Operations Integration Function
POIWG	Payload Operations and Integration Working Group
POM	Portable Oxygen Monitor
PoP	Period of Performance
PPBE	Planning, Programming, Budgeting, and Execution
PPC	Private Psychological Conference
PPE	Personal Protective Equipment
PPFS	Portable Pulmonary Function System
PR	Purchase Request
PRA	Probabilistic Risk Assessment
PRCB	Program Requirements Control Board
PRCU	Payload Rack Checkout Unit
PRD	Program Requirements Document
PRIMA	Program Requirements Integration Management and Architecture
PRIMO	KSC Ground Operations (KSC/GO)
PRP	Personnel Reliability Program
PRR	Preliminary Readiness Review
PRs	Purchase requests
PRVD	Project Requirements and Verification Document
PS	Project Scientist
PSC	Private Special Conferences
PSE	Payload Systems Engineer

PSG	Posture Spatial Group
psi	Pounds per square inch
PSMO	Pressure Systems Manager's Office
PSRP	Payload Safety Review Panel
PT	Proficiency Testing
PTDR	Payload Training Dry Run
PTH	Parathyroid Hormone
PTP	Payload Tactical Plan
PTRS	Project Technical Requirements Specification
PU	Panel Unit
PV	Procedure Validation
PWD	Potable Water Dispenser
PWR	Payload Water Reservoir
Q	Quarter
QA	Quality Assurance
QAO	Quality Assurance Office
QAPP	Quality Assurance Plans and Procedures
QAPP	Quality Assurance Project Plan
QARC	Quality Assurance Records Center
QARSO	Quality assurance, Reliability, and Safety Office (WSTF)
QATP	Qualification and Acceptance Test Plan
QC	Quality Control
QCT	Quantitative Computed Tomography
QE	Quality Engineering
QMS	Quality Management System
QOE	Quality of Evidence
QP	Quality Procedure
QTR	Quarter
Qty / QTY	Quantity
R	Return
R+0	Landing Day
R+60	60 Days Post Crew Return
R&M	Reliability and Maintainability
R2WS	Rack 2 Workstation
RAD	Radiation Assessment Detector
RAD	Radiation
RAESR	Risk Assessment Executive Summary Report
RAIL	Rolling Action Item List

RAIT	Risk Assessment and Integration Team
RAM	Resident in Aerospace Medicine
RAM	Radiation Area Monitor
RC	Refrigerated Centrifuge
RCAR	Requirements Change Assessment Reports
RCRA	Resource Conservation and Recovery Act
RED	Resistive Exercise Device
Req'd	Required
Reqmt	Requirement
Rev.	Revision
RF	Radio Frequency
RFA	Request For Amendment
RFID	Radio Frequency Identification
RFP	Requests for Proposals
RHA	Rack Handling Adapter
RHO	Radiation Health Officer
RHWG	Radiation Health Working Group
RIA	Radioimmunoassay
RIC	Rack Interface Controller
RIC	Radioactive Isotope Committee
RICB	Research Integration Control Board
RID	Review Item Discrepancy
RIO	Research Integration Office
RIP	Requirements Integration Panel
RITF	Receiving Inspection Test Facility
Rm	Room
RMAT	Risk Management Analysis Tool
ROI	Rapid Operational Investigation
ROM	Rough Order of Magnitude
ROSA	Radiation Operations Support Area
ROV	Remote Operated Vehicle
RPCM	Remote Power Controller Module
RPL	Rapid Prototyping Laboratory
RPWG	Research & Planning Working Group
Rq	Requirements
RRT	Rapid Response Team
RSA	Russian Space Agency
RSAA	Reimbursable Space Act Agreement
RSM	Risk Surveillance Methods

RSO	Radiation Safety Officer
RSP	Respiratory Support Pack
RWG	Requirements Working Group
S	Service
SA	Human Health & Performance Directorate
SAPP	Sampling and Analysis Plan and Procedures
S&H	Safety and Health
S&M SPRT	Structures and Mechanisms System Problem Resolution Team
S&MA	Safety and Mission Assurance
S/N	Serial Number
SA	Human Health and Performance Directorate mail code
SAID	Spaceflight Associated Immune Dysregulation
SAM	System for Award Management
SAN	Storage Area Network
SAPP	Sampling and Analysis Plan and Procedures
SAR	Safety Analysis Report
SARJ	Solar Alpha Rotary Joint
SARS	SA Request System
Sas	Submission Agreements
SAS	Statistical Analysis System
SAV	Symantec Anti-Virus
SAVIO	Software and Avionics Integration Office
SB	Small Businesses
SBIR	Small Business Innovative Research
SBT	Shuttle BME Tagup
SBU	Small Business Utilization
SBU	Sensitive But Unclassified
SCH	Space Center Houston
SCB	Suit Control Board
Scir	Sleep Circadian Rhythm
SCK	Sample Collection Kit
SCO	Space and Clinical Operations
SCOCB	Space and Clinical Operations Control Board
SCTF	Sonny Carter Training Facility
SD	Space and Clinical Operations Division mail code
SDA	Shuttle Data Archive

SDB	Small Disadvantaged Business Concerns
SDBI	Short Duration Bioastronautics Investigation
SDD	Software Design Description
SDIL	Software Development Integration Lab
SDP	Safety Data Package
SDR	System Design Review
SDTO	Station Detailed Test Objective
SBVOSB	Service-Disabled Veteran-Owned Small Business Concerns
SE	Systems Engineering
SE&I	Systems Engineering and Integration
SEB	Source Evaluation Board
SECB	System's Engineering Control Board
SEETS	Specialized Engineering, Evaluation and Test Services Contract
SEIO	Strategic Execution and Innovation Office
SEG	Similar Exposure Groups
SEMO	Supply and Equipment Management Officer
SEMP	Systems Engineering Management Plan
SEP	Systems Engineering Process
SEV	Space Exploration Vehicle
SF	Human Systems Engineering and Development Division (mail code)
SF	Standard Form
SFAS	Statement of Financial Accounting Standards
SFHSD	Spaceflight Health Standards Document
SFHSS	Space Flight Human System Standard
SFSL	Space Food Systems Lab
SFS	Safety and Fire Services
SHBP WG	Spaceflight Human Behavior and Performance Working Group
SHE	Safety, Health, and Environmental
SHFE	Space Human Factors Engineering
SHFH	Space Human Factors and Habitability
SHFL	Space Human Factors Lab
SIB	Safety Information Brief
SIG	System Interface Group
SIP	State Implementation Plan
SIP	Systems Integration Plan
SISL	Systems Integration and Support

	Laboratory
SK	Biomedical Research and Environmental Sciences Division mail code
SLAMMD	Space Linear Acceleration Mass Measurement Device
SLC	Standard Labor Categories
SLM	Sound Level Meter
SLM	Sound Level Monitor
SLS	Subject Loading System
SLS	Space Launch System
SLSD	Space Life Science Directorate
SLSSI	Space Life Sciences Summer Institute
SM	System Manager
SMASSC	Safety and Mission Assurance Support Services Contract
SMART	Safety and Mission Assurance Review Team
SMCCB	Space Medicine Configuration Control Board
SMCCB-IT	Space Medicine Configuration Control Board for Information Technology
SMD	Space Medicine Division
SMD	Security Management Directive
SME	Subject Matter Expert
SMIT	Space Medicine Information Technology
SMO	Supplemental Science Objective
SMOg	Ground Supplemental Medical Objective
SMOT	Space Medicine Operations Team
SMP	Science Management Panel
SMA	Safety and Mission Assurance
SMS	Space Motion Sickness
SNOMED	Systematized Nomenclature of Medicine
SNOMED CT	Systematized Nomenclature of Medicine – Clinical Terms
SODB	Shuttle Operations Data Book
SODF	Station Operations Data File
SOHO	Solar Heliosphere Observatory
SOMSTC	Space Operations Medical Support Training Course
SOP	Standard Operating Procedure
SOR	Stage Operations Review
SORG	Shuttle Orbiter Repackaged Galley

SORR	Stage Operation Readiness Review
SOS	Emergency Clinic in Russia
SOW	Statement of Work
SP	Security Plan
SPDM	Special Purpose Dexterous Manipulator
SPE	Solar particle event
SPEFWD	Solar Particle Event Forward
SPERT	Solar Particle Event Real Time
SPEL	Space Permissible Exposure Limit
SPORTs	Science Payloads Online Resource Tools
SPRINT	Study on Periodized Resistance and Interval Training
SPRT	System Problem Resolution Team
SPSA	Space Life Sciences Directorate Space Medicine and Healthcare System Information Technology Security Plan
SPSA-0031	MEME Security Plan document number
SQA	Safety and Quality Assurance
SRM&QA	Safety, Reliability, Maintainability and Quality Assurance
SRP	Station Review Panel
SPSS	Statistical Package for the Social Sciences
SQA	Safety Quality Assurance
SQA	Software Quality Assurance
SQL	Structural Query Language
SR	Safety Review
SR	Service Request
SR	Support Request
SR&QA	NASA Safety Reliability & Quality Assurance
SRAG	Space Radiation Analysis Group
sRANKL	Soluble receptor activator of nuclear factor- ligand
SRC	Short Radius Centrifuge
SRD	System Requirements Document
SRHP	Space Radiation Health Project
SRL	Space Radiation Lab
SRM	Safety, reliability, and maintainability
SRM&QA	Safety, Reliability, Maintainability and Quality Assurance
SRP	Standing Review Panel
SRPE	Space Radiation Project Element

SRQA	Safety, Reliability, and Quality Assurance
SRR	Systems Requirements Review
SRS	Software Requirement Specification
SRSD	Software, Robotics, and Simulation Division
SSA	Source Selection Authority
SSATA	Space Station Air Lock Test Article
SSC	Station Support Computer
SSCN	Space Station Change Notice
SSK	Surface Sampler Kit
SSP	Space Station Program
SSPCB	Space Station Program Control Board
SSPCM	Solid State Power Control Module
ST	Subtask
STAT	Immediately
STD	Standard
STE/D	Special Test Equipment or Device
STEP	Suitcase Test Environment for Payloads
STI	Science and Technical Information
STIS	Specimen Tracking and Inventory System
STO	Sub-Task Order
STOMP	Student Teacher Outreach Mentorship Program
STS	Space Transportation System
STTCP	Security/Technology Control Plan
SVMF	Space Vehicle Mockup Facility
SVT	Science Verification Test
SVTL	Safety Verification Tracking Log
SW	Software
SWAB	Surface, Water & Air Biocharacterization
SwRI	Southwest Research Institute
SYS	System
sZLS	Stand-alone Zero-Gravity Locomotion Simulator
T&O	Treatment and Outcome
T&V	Test and Verification
T2	Treadmill 2/ Second Treadmill
TA	Technical Approach
TAR	Task Acceptance Review
TB	Tuberculosis

TBD	To Be Determined
TBR	To Be Resolved
TCDT	Terminal Countdown Demonstration Test
TCEQ	Texas Commission on Environmental Quality
TCM	Technical Coordination Meeting
TCR	Technical Change Request
TCSR	Technical, Cost, and Schedule Review
TD	Technical Products & Data Package
TDIC	Technical Documentation and Information Center
TDO	Task Delivery Order
TDOM	TDO Monitor
TDS	Technical Data Services
TDS	Task Description Sheet
TDH	Texas Department of Health
TEDP	Test Equipment Data Package
TDY	Temporary Duty
TEPC	Tissue Equivalent Proportional Counter
TIA	Technology Integration Agent
TIM	Technical Interchange Meeting
TIMS	Task Information Management System
TIPCL	Technical Innovations Proposed Contract Language
TIR	Team Integrated Review
TM	Technical Monitor
TMR	TM Representative
TMS	Task Management Sheet
TNI	The NELAC Institute
TO	Task Order
TOC	Total Organic Carbon
TOCA	Total Organic Carbon Analyzer
TOPT	Task Order Pricing Template
TOX	Toxicology
TPS	Task Performance Sheet
Trans	Transmittal
TRI	Toxic Release Inventory
TRL	Technology Readiness Level
TRRP	Texas Risk Reduction Protocol
TRR	Test Readiness Review
TRST	Technical Resources Summary

	Template
TSC	Telescience Support Center
TST	Training Strategy Team
TTI	Tech Trans International
TtO	Transition to Operations
TUBSS	Temporary Urine and Brine Stowage System
TSCA	Toxic Substance Control Act
TV	Television
TVEmF	Time Varying Electromagnetic Fields
TVIS	Treadmill with Vibration Isolation and Stabilization
TVR	Test and Verification Requirements
TWIG	Trash/Waste Integration Group
TxACE	Transmit Array Combining Experiment
TXL	Toxicology Lab
U.S.	United States
U.S.C.	United States Code
UAV	Unmanned Aerial Vehicle
UAWG	User Applications Working Group
UCD	Urine Collection Device
UEIPAC	United Electronic Industries Programmable Automation Controller
ULLS	Unilateral Lower Limb Suspension
UMS	Urine Monitoring System
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
UOP	Utility Outlet Panel
UPA	Urine Process Assembly
UPCG	Unique Processes, Criteria, and Guidelines
URC	User Requirements Collection
URR	User Readiness Review
US	United States / Ultrasound
US	Ultrasound
USAF	United States Air Force
USD	United States Dollars
USN	United States Navy
USND	Ultrasound
USOS	United States On-Orbit Segment
USRA	Universities Space Research Association
UTAF	Usability Testing and Analysis Facility

UTMB	University of Texas-Medical Branch
UV/Vis	Ultra Violet Visible
V&V	Verification and Validation
V&VD	Verification and Validation Document
VCAM	Vehicle Cabin Air Monitor
VCB	Vehicle Control Board
VCN	Verification Logic Network
VCO_2	Volume of carbon dioxide exhaled
VCR	Video Cassette Recorder
VDD	Version Description Document
VFA	Vertebral Fracture Assessment
VGE	Venous Gas Emboli
VIE	Vehicle Interface Element
VIIP	Visual Impairment/Intracranial Pressure
VIPER	Vehicle Integrated Performance, Environments & Resources
VIS	Vibration Isolation System
VITT	Vehicle Integration Test Team
VLA	Volume License Agreement
VLN	Verification Logic Networks
VO2	Volume of Oxygen Consumption
VO_2	Volume of oxygen uptake
VO_2 Max	Volume of Oxygen maximum exercise test
VOL	Volume
VOS	Variable Oxygen System
VOSB	Veteran Owned Small Business Concerns
VPMP	Vented Payload Mounting Panel
VPP	Voluntary Protection Program
VPN	Virtual Private Network
VR	Virtual Reality
VR	Verification Requirements
VTL	Verification Tracking Log
VZV	Varicella Zoster Virus
WAD	Work Authorization Document
WAFAL	Water and Food Analysis Laboratory
WAR	Weekly Activity Report
WAWF	Wide Area Work Flow
WBCS	Water Biocide Conversion System
WBS	Work Breakdown Structure

WFA	Work from Anywhere
WG	Working Group
WHI	Workplace Health Inspection
WI	Work Instruction
WIP	Work in Progress
WinSCAT	Spaceflight Cognitive Assessment Tool for Windows
WLK	Wet Lab Kit
WMD	Weapons of Mass Destruction
WMR	Waste Management Request
WMS	Water Monitoring System
Word	Definition
WOSB	Women Owned Small Business Concerns
WP	Work Package
WPA	Water Processor Assembly
WS	Work Station
WSTF	White Sands Test Facility
WTAK	Water Transfer Accessory Kit
WTK	Water Transfer Kit
WTS	Water Transfer Sustaining
yr	year
WYE	Work Year Equivalent
ZAG	Z-Aligned Gravitoinertial
ZBR	Zero Base Review

Human Health and Performance Contract (HHPC)

Quality Requirements

Attachment J-26

Quality Requirements

J26-1 SUPPLY CHAIN TRACEABILITY

For equipment manufactured, fabricated, or assembled and intended for use in space-flight applications, critical Ground Support Equipment, or when directed by Task Order, the Contractor shall maintain a method of item traceability that ensures tracking of the supply chain back to the manufacturer of Electrical, Electronic or Electromechanical (EEE) parts included in assemblies and subassemblies. This traceability shall clearly identify the name and location of all supply chain intermediaries from the manufacturer to the direct source of the product for the Contractor and shall include the manufacturer's batch identification for the item(s) such as date codes, lot codes, serializations, or other batch identifications. This clause does not apply to Commercial Off-the-Shelf equipment (i.e. end-items) unless directed by Task Order.

J26-2 SINGLE LOT/DATE CODE

The full quantity each part number of date code controlled Electrical, Electronic or Electromechanical (EEE) parts, for each project, provided under this contract for space-flight applications, critical Ground Support Equipment, or when directed by Task Order must have a single lot/date code. The Contractor shall obtain written approval from the Contracting Officer with concurrence from the JSC Parts Control Board prior to delivering goods that do not meet this single lot/date code requirement. The Contractor shall provide a copy of this written authorization at the time of delivery.
When mixed lot/date codes are authorized, the DD250, Material Inspection Record, shall list individual lot/date codes and quantity. Multiple lot/date codes shall not be co-mingled. In addition, the individual part containers shall be marked with the lot/date code and quantity.

J26-3 EEE PART CERTIFICATE OF CONFORMANCE

The Contractor shall obtain and approve Electrical, Electronic or Electromechanical (EEE) part manufacturer's Certificate of Conformance (CofC) for EEE parts procured for use in space-flight applications, critical Ground Support Equipment, or when directed by Task Order. The manufacturer's CofC shall, at a minimum, include the following:

1. Manufacturer's name and address
2. Manufacturer's and/or buyer's part identification number

3. Batch identification for the item(s) such as date codes, lot codes, serialization, or other batch identifications
4. Signature or stamp and date, with the title of the seller's authorized personnel signing the certificate.

J26-4 WORKMANSHIP REQUIREMENTS

The Contractor shall comply with the following standards, as applicable, in the design, manufacture, fabrication, or assembly of equipment suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order:

- IPC 2221, "Generic Standard on Printed Board Design"
- IPC 2222, "Sectional Design Standard for Rigid Organic Printed Boards"
- IPC 6011, "Generic Performance Specification for Printed Boards"
- IPC 6012, "Qualification and Performance Specification for Printed Boards"
- IPC J-STD-001ES, "Space Applications Electronic Hardware Addendum to J-STD-001E Requirements for Soldered Electrical and Electronic Assemblies (Except Chapter 10)"
- NASA-STD-8739.1, "Workmanship Standard for Polymeric Application on Electronic Assemblies"
- NASA-STD-8739.4, "Crimping, Interconnecting Cables, Harnesses and Wiring"
- NASA-STD-8739.5, "Fiber Optic Terminations, Cable Assemblies, and Installations"
- S312-P-003B, "GSFC Procurement Specification for Rigid Printed Boards for Space Applications and Other High Reliability Users"

NASA Technical Standards for workmanship are available electronically at https://standards.nasa.gov

J26-5 FASTENER INTEGRITY

The Contractor shall comply with JPR 8730.2, "JSC Fastener Integrity Testing Program" for the manufacture, fabrication, or assembly of equipment suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order.

J26-6 WIRE INTEGRITY

The Contractor shall comply with JSC-STD-8080 "Design and Procedural Standards, E-

24 Electrical Wire and Cable Acceptance Test" for the manufacture, fabrication, or assembly of equipment suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order.

J26-7 ELECTROSTATIC DISCHARGE (ESD) PROTECTION PROGRAM AND PACKAGING

The Contractor shall comply with JSC 66552, "Electrostatic Discharge Control Requirements for the Protection of Electronic Components and Assemblies" for work conducted onsite at the Johnson Space Center. For work conducted offsite or subcontracted to a vendor, the Contractor shall ensure ANSI/ESD S20.20-2007, "Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)" is imposed and followed when said work involves ESD sensitive equipment. The Contractor shall comply with MIL-STD-1576, Military Standard: Electroexplosive Subsystem Safety Requirements and Test Methods For Space Systems for Electrically Initiated Explosive Devices.

J26-8 FOREIGN OBJECT DEBRIS (FOD) AND CONTAMINATION CONTROL

The Contractor shall comply with JPR 5322.1 "Contamination Control Requirements Manual".

J26-9 GUARANTEE OF PRODUCT SOURCE(S)

The Contractor shall ensure that only new and authentic parts or materials are used in products delivered to NASA for space-flight applications, critical Ground Support Equipment, or when directed by Task Order. The Contractor may only purchase parts directly from the Original Component Manufacturers (OCMs); OCM-authorized suppliers (e.g. franchised distributors), or authorized aftermarket manufacturers. Use of product that was not provided by these sources is not authorized unless first approved in writing by the Contracting Officer and, in the case of an Electrical, Electronic or Electromechanical (EEE) part, the JSC Parts Control Board. The Contractor must present compelling support for this request (e.g. OCM documentation that authenticates traceability of the parts to the OCM) and include in its request all actions to ensure the part(s) or material is authentic and conforming to specification. The Contractor shall provide a copy of this written authorization at the time of delivery.

J26-10 CERTIFICATE OF CONFORMANCE FOR RAW MATERIALS

The Contractor shall obtain and provide for each deliverable product a legible raw material manufacturer's test report (e.g. mill test report) that states the lot of material furnished has been tested, inspected, and found in conformance with applicable material specifications. The test report will list the specifications, including revision numbers or letters, to which the material has been tested and/or inspected and the identification of the material lot to which it applies. When the material specification requires quantitative limits for chemical, mechanical, or physical properties, the test report will contain the actual test and/or inspection values obtained.

The Contractor shall comply with JWI 8730.7, "Validation Testing of Raw Materials".

This clause is only applicable to material procured for the manufacture, fabrication or assembly of equipment suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order. This clause is not applicable to Commercial Off-the-Shelf products.

For instances where the Contractor is unable to obtain a legible manufacturer's test report (written in the English language), the Contractor shall request the services of the JSC Receiving Inspection and Test Facility (RITF) or an independent testing laboratory accredited by a nationally recognized laboratory accrediting organization, e.g. Nadcap, to obtain actual chemical, mechanical, and physical properties.

J26-11 CERTIFICATE OF CONFORMANCE – PRODUCTS

The Contractor shall provide a certification with each shipment of equipment suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order to attest that the parts, assemblies, subassemblies, or detail parts conform to the order requirements. Certifications must contain the following:

- Customer's order number
- Product name
- Part identification number and, if applicable, serial number
- Name and address of the manufacturing or processing location
- If applicable, the true manufacturer's part identification, lot, heat, batch, date code, and/or serial number
- Quantity and unit of measurement (each, box, case, gallons, etc.)

- Signature of company official and date

J26-12 LIMITED OPERATING LIFE ITEMS

The Contractor shall collect data and maintain records of operating time or cycles for all items designated as Limited Operating Life Items by drawings or specifications. Records will include the total elapsed time or cycle for each operation, cumulative time or cycles starting with the first functional test remaining time or cycles. A copy of this data will be included within the Acceptance Data Package for each deliverable item traceable to the individual item by part identification number and serial number.

J26-13 LIMITED LIFE AND AGE CONTROLLED (SHELF LIFE) ITEMS

Products suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order require submittal of date of manufacture when shelf life is based on date of manufacture, or date of shipment from the manufacture when shelf life is based on date of shipment, as appropriate, based on specified method of shelf life determination.

Upon shipment, shelf life remaining shall meet the minimum shelf life specified on the order. If no shelf life is specified, seventy five (75) percent of the shelf life shall be remaining on products.

Certification must contain the following:

- Contract number
- Part identification number
- Manufacturer's name, lot, heat, batch, date code, and/or serial number (as applicable)
- Date of manufacture
- Date of shipment from manufacturer (as specified on the Order)`
- Organization's name and Organization's point of contact
- Date

J26-14 SPACE-FLIGHT HARDWARE PROCUREMENT

The Contractor shall include the following statement in all subcontracts and purchase

orders placed by it in support of this contract for space-flight applications, without exception as to the amount or subcontract level:

"FOR USE IN HUMAN SPACE FLIGHT; MATERIALS, MANUFACTURING, AND WORKMANSHIP OF THE HIGHEST QUALITY STANDARDS ARE ESSENTIAL TO ASTRONAUT SAFETY.

IF YOU ARE ABLE TO SUPPLY THE DESIRED ITEM(S) WITH A HIGHER QUALITY THAN THAT OF THE ITEM(S) SPECIFIED OR PROPOSED, YOU ARE REQUESTED TO BRING THIS FACT TO THE IMMEDIATE ATTENTION OF THE PURCHASER."

J26-15 SPECIAL PROCESS CERTIFICATION

Certain special processes are required to comply with this contract for the manufacture, fabrication, assembly, testing, or operation of equipment suitable for space-flight applications, critical Ground Support Equipment, or when directed by Task Order. Special processes shall be performed only by sources that have been surveyed and qualified/approved by the Contractor or NASA to perform those tasks. The Contractor shall provide data/documentation into the NASA Supplier Assessment System database (http://sas.nasa.gov) showing evidence of special processor qualification and/or certification to perform special manufacturing, assembling, and testing as required by the contract. The Contractor may elect to use only NASA approved sources (e.g. Nadcap accredited sources).

A special process certification shall be provided with each shipment of item(s) delivered on this contract. Special process certifications may be in the supplier format but shall include the following:

- NASA contract number
- Part identification number(s)
- Serial and/or lot numbers of the hardware processed (if applicable)
- Material process specification and revision identifier
- Objective evidence demonstrating compliance with the applicable process (e.g. temperature charts and hardness test results for heat treatment, destructive test results.)
- Certification statement declaring the special process was performed per the applicable drawing or specification requirements
- Contractor's name and address

- When special processor is other than the Contractor, provide a certification of compliance from the special processor stating the special process was performed per the applicable drawing or specification requirements. Certifications must include the processor's name, address, and be signed and dated by a company official.
- Each certification must be signed and dated by a company official of the Contractor and/or processor attesting to the acceptance of the process performed to the required specification(s).

Note: A special process, as used in the context of this clause, is any process or service provision where subsequent monitoring or measurement cannot verify the resulting output. This includes any process where deficiencies become apparent only after the product is in use or service has been delivered. Examples may include, but are not limited to: Heat Treat, Nondestructive test or inspection, chemical or mechanical coatings (e.g. anodize, passivation), welding, unique or uncommon processes.

J26-16 JSC DESIGN AND PROCEDURAL STANDARDS

The Contractor shall comply with JSC-STD-8080,"JSC Design and Procedural Standards". This clause is only applicable for the design, manufacture, fabrication, assembly, or test of space-flight equipment, Ground Support Equipment, or when directed by Task Order.

J26-17 PRESSURE VESSELS AND PRESSURIZED SYSTEMS

The contractor shall comply with JPR 1710.13, "Design, Inspection, and Certification of Ground Based Pressure Vessels and Pressurized Systems." Section 1.3c, for all HHPC contractor-operated ground based Pressure Vessels/Systems (PV/S) on JSC property and JSC owned PV/S on HHPC contractor property.

Human Health and Performance Contract (HHPC)

Definitions

Attachment J-27

Word/Phrase	Definition
Insight	Insight is a surveillance method located in the risk tables. Insight is an assurance process that uses product performance requirements and performance metrics to ensure process capability, product quality and end-item effectiveness. Insight relies on gathering a minimum set of product or process data that provides adequate visibility into the integrity of the product or process. The data may be acquired from contractor records, usually in a non-intrusive parallel method. Insight should result in lower levels of Government surveillance and allow the contractor to assume increased responsibility and accountability for the integrity of processes. Insight will rely heavily on evaluating planned contract deliverables and existing contractor procedures and working documents. Commonly, insight is an appropriate strategy for contracts with little cost risk to the government, clearly defined products or services, and confidence in contractor performance is high.
Oversight	Oversight is a surveillance method located in the risk tables. Oversight is an assurance process that uses customer-imposed product specification and process controls, such as unique requirements, MIL-Specifications, MIL Standards and mandatory inspections, to direct the development and production of the product. Oversight is intrusive in that it requires gathering contractor product or process data through on-site, in-series involvement in the process. Oversight entails very detailed monitoring of the process itself. Oversight is an in-line involvement in an activity, principally through inspection, with review and approval authority implicit to the degree necessary to assure that a process or product's key characteristics are stable and in control. Government inspection points will be determined primarily by NASA Project Manager requirements for progress reviews or as otherwise specified. Examples of processes which oversight is appropriate for are: 1) when the Government assumes the liability for performance or quality; 2) when the Government has determined that oversight is the only method to mitigate risk; 3) when the contractor has limited experience: the contractor has not demonstrated acceptable performance on this or prior efforts.
Hybrid	Hybrid is a surveillance method located in the risk tables. A hybrid surveillance approach combines elements of insight and oversight and may be instituted at a contractor's facility when a high level of confidence does not exist regarding the contractor's ability to identify, manage and control programmatic risks. This may occur when new technology is acquired or unproven processes are employed by a contractor in all or part of the contract performance. In this situation, oversight surveillance is used until sufficient data exist that demonstrate the contractor has all critical processes under control. The oversight activities usually impose mandatory Government inspection points in-series with the contractor's manufacturing processes. If, during contract performance, the contractor demonstrates effective risk mitigation capabilities, NASA will consider transitioning to insight activities that rely predominantly on internal contractor data. The transition period from oversight to insight activities is hybrid and accomplished incrementally, depending on contractor performance. The hybrid approach may be fairly common since development contracts often include delivery of interim products that may be clearly defined and require less oversight.
Hardware	The term hardware may refer to all projects deliverables such as hardware, software, and firmware as it applies to NPR 7150.2A.
Evidence-Based Medicine	Integration of best research evidence with clinical expertise and patient values

Electronic Medical Record	The General Electric Company (GE) Medical Systems Centricity software and database which permits documentation of clinical care at the point of care, used in both the FMC and OMC
Civil Service Personnel	NASA employees assigned to JSC and any other Federal government employees.
Joint Commission	Joint Commission standards are based upon consensus, performance-based metrics that are patient-focused and address the key functions that healthcare organizations must do well in order to achieve excellent outcomes of care.
NonOccupational Injury	An injury sustained by an employee while not officially engaged in the pursuit of a work assignment.
Occupational Illness	An illness experienced by an employee wherein the environmental conditions of the employee's assigned work place, (as defined by the Occupational Safety and Health Administration (OSHA)) were a contributing factor in the development of that illness.
Non-Occupational Illness	An illness experienced by an employee wherein the environmental conditions of the employee's assigned work place were not a contributing factor in the development of that illness.
Onsite Contractor Personnel	Contractor personnel having official duty stations at JSC, Ellington Field, SCTF, and WSTF.
Qualified Contractor Personnel	Contractor employees that are allowed to use the JSC Occupational Medicine Clinic (OMC) for job related physical examinations by their governing NASA contract.

Human Health and Performance Contract (HHPC)

HHPD Research and Development, Laboratories, Technical Training, and Testing Facilities

Attachment J–28

HHPD Research and Development, Laboratories, Technical Training, and Testing Facilities

Attachment J-28, HHPD Research and Development, Laboratories, Technical Training, and Testing Facilities contain information related to the various HHPD facility types and functional descriptions.

A complete listing of HHPD facilities is provided in a separate Microsoft Excel Spreadsheet, “J-28 HHPD Facilities Listing” which is attached to this document.

SOW Section	Laboratory/Facility Title	Facility Type	Functional Description	DLO	Center/Site	Building	Room Number(s)
1.0	**Contract Management and Administration**						
2.0	**Health, Research Laboratories and Services**						
2.0	HHPD Freezers	Storage	Freezer storage for archived biomedical samples	SA	JSC	30	3M11
2.0	Life Science Research Freezers	Storage	Controlled temperature temporary sample storage for biomedical research; houses samples from multiple labs; controlled access; cold storage from -80˚c to 4˚C	SA	JSC	37	2M/E2, 2M1
2.1	**Health Services**						
2.1.1	**Flight Medicine, Occupational Medicine and Dive Medicine Clinics**						
2.1.1.1	Flight Medicine Clinic (FMC)	Clinic	Primary care and aerospace medicine needs of astronauts and NASA aviators; behavior and performance operations for psychological support; astronaut conditioning	SA	JSC	8	100, 101, 102, 1100, 1101, 1102, 1103, 1104, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 132, 133, 134, 135, 136, 137, 138, 139, 161, 161A, 161B, 162, 162A, 163, 164, 165, 219, 220, 220A, 229, 229A, 229AA, 29B, 229C, 233, 233A, 234, 250, 250A, 250B, 250C, 250D, 250E, 250F, 277, 277A, 277B, 277C, 277D, 277E, 278
2.1.1.2	Occupational Medicine Clinic (OMC)	Clinic	Provides regular civil servant health screening physical exams, occupation specific exams (per NASA and OSHA regulations) as well as diagnosis and medical treatment of occupational injury or illness to JSC civil service personnel, other Federal Government employees assigned to JSC, Armed Forces personnel detailed to JSC and onsite contractors; addresses minor illnesses/injuries for on-site personnel.	SA	JSC	8	142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 161, 161A, 161B, 162, 162A, 163, 164, 165, 219, 220, 220A, 229, 229A, 229AA, 29B, 229C, 233, 233A, 234, 250, 250A, 250B, 250C, 250D, 250E, 250F, 277, 277A, 277B, 277C, 277D, 277E, 278
2.1	Aviation Safety	Office	Ellington Field (EFD) Aviation Safety Office	AOD	JSC/EFD	E276	1003
2.1	ISS Health Maintenance System (HMS) Laboratory	Lab	Processing, packing and configuration of of medical supplies and consummables for flight	SA	JSC	8	204RAA
2.1	Columbia Center for Human Spaceflight Performance & Research	Training / Simulation; Lab/R&D	Crew physical performance and flight hardware training; baseline data collection; biomedical testing of crew pre- and post-flight	SA	JSC	26	All rooms
2.1	HHPD Flight Crew Training	Training / Simulation	Crew training of HHPD flight hardware	SA	JSC	4S	5813; 5807
2.1.1.2	Occupational Medicine Clinic	Clinic	Occupational Medicine Clinic for White Sands Test Facility employees.	SA	WSTF	104	129, 130
2.1.1.2	Wellness	Office	Office and storage room for Wellness Coordinator	SA	WSTF	107	112
2.1.1.3	Dive Medicine Clinic (DMC)	Clinic	Full dive medicine services at the Neutral Buoyancy Lab (NBL) at SCTF; provide for acute care needs for the divers and astronauts working in the pool at the NBL.	SA	SCTF	920	South Bay, 1335 A-C, 1337, 1337 A-E, 1339, 133D, 2335, 3337, 2337
2.1.1.2.1	SCTF Health/Human Test Support	Chamber	Hyperbaric and hypobaric chambers. Emergency medical support for Neutral Buoyancy Laboratory operations.	SA	SCTF	920	South Bay
2.1.1.2.1	Human Test Support	Medical	Medical staff office; medical examination rooms; storage	SA	SCTF	920	1335 A-C, 1337, 1337 A-E, 1339, 133D, 2335, 3337, 2337
2.1.2	Clinical Laboratory	Lab/R&D	Provides all Clinical Laboratory operations services including phlebotomy, laboratory analysis, and reporting services for all clinical laboratory clients; laboratory testing for astronaut selection as well as pre- and post-flight support	SA	JSC	37	1256
2.1.4	Industrial Hygiene	Office	Evaluation and characterization of workplace health hazards; characterizing and assessing workplace exposures; maintaining workplace survey plan and assessment data; conducting annual workplace health inspections	SA	WSTF	101	139
2.2	**Animal Care Facility (ACF)**		Accredited by Associaton for Assessment & Accreditation of Laboratory Animal Care (AAALAC); supports the Animal Conservation Projects at JSC, crew involvement with animals associated with spaceflight experiments; responsible for all animals housed in ACF, outreach, ground-based animal studies, in-flight support of missions involving animals.	SA	JSC	37	167, 1033, 1033A, 1033AA, 1033AAA, 1033B, 1033C
2.3	**Biomedical Research Laboratories**						
2.3.1	Biomedical Engineering for Exploration Space Technology (BE^2ST) Laboratory	Lab/R&D	Collaboration between the HHPD and the Engineering Directorate; design and fabrication of new radiofrequency and electromagnetic instrumentation and generation of a wide variety of novel, customized, cell/tissue based models to facilitate the proof of concept, prototype development, and final validation of the technology	SA	JSC/EV8	14	132C
2.3.2	Biostatistics	Lab/R&D	Consulting expertise with the application of statistical theory and practice to ongoing biomedical research, aiding in the preparation of research proposals that describe experimental design, statistical modeling and subsequent analysis of anticipated research data	SA	JSC	37	
2.3.3	Bone and Mineral Laboratory	Lab/R&D	Ground based and flight research to characterize the effects of real or simulated spaceflight on the musculoskeletal system; evaluate efficacy of countermeasures; DXA scans; guidance in the development of astronaut medical standards/physiological interpretation of data on bone and muscle loss; support musculoskeletal evaluations for research studies/collaborative studies with extramural institutions; proposed exercise hardware evaluations.	SA	JSC	266	112, 113

2.3.4	Cardiovascular Research Laboratory	Lab/R&D	Perform ground-based and spaceflight research to establish a normative database of cardiovascular changes; medical evaluation tests before and after flight on all crew members; ultrasound/echocardiography; hardware development; just-in-time medical imaging training tools, and in-flight "lab-on-a-chip" technologies.	SA	JSC	261	120, 121, 136
2.3.5	Extra-Vehicular Activity (EVA) Physiology Laboratory	Lab/R&D	Design of experiments/analyses in environmental physiology and suited human performance; evaluate potential protocols for mitigation of the risk of decompression sickness; development of individual exercise prescriptions for the exercise pre-breathe reduction protocol, and suited metabolic rate characterization	SA	JSC	37	1005
2.3.6	Exercise Physiology and Countermeasure Laboratory	Lab/R&D	Development of exercise protocols and hardware to maintain astronaut health and fitness; astronaut medical assessment testing; evaluation of exercise countermeasures hardware, protocols, and conditioning programs	SA	JSC	261	114, 122, 133, 137
2.3.7	Immunology Laboratory	Lab/R&D	Conducting of ground-based and flight research; conceptual design, prototype development, or clinical validation for specific flight hardware; investigating the adverse effects of spaceflight on the human immune system; development of countermeasures	SA	JSC	37	1096, 1219
2.3.8	Neuroscience Laboratory	Lab/R&D	Performance of human subject data collection and analyses for ground-based and flight studies; research and analyses in motion, neuroautonomic evaluations, constant velocity rotation, dynamic postural control, tilt-translation, combined centripetal and translational linear acceleration, manual control, sensorimotor and visual-vestibular gaze investigations.	SA	JSC	266	103, 104, 107, 108, 110, 115, 130, 131,134
2.3.9	Nutritional Biochemistry Laboratory	Lab/R&D	Determination of human nutritional requirements for extended-duration spaceflight, maintain astronaut health, and develop, evaluate, and validate nutritional countermeasures; supports spaceflight operations and nutritional research	SA	JSC	37	1200, 1253, 1253A, 1257, 1263
2.3.10	Pharmacotherapeutics Laboratory	Lab/R&D	Mitigatation of pharmacotherapeutics risk by identifying and providing safe and effective diagnostics tools, pharmaceutical perparations, therapeutic procedures and intervention strategies; research in pharmacokinetics, pharmaco-dynamics, applied physiology and therapeutic drug monitoring	SA	JSC	37	1230, 133
2.3	Baseline Data Collection Facility (BDCF)	Technical, Storage	Collection of preflight and posflight clinical and experimental medical data from crewmembers	SA	JSC	9	1010 A-G
2.3	Altitude Training Chamber	Lab/R&D	Support of research and conducting of high altitude training and simulation	SA	JSC	32	
2.4	**Environmental Sciences Laboratories**						
2.4.1	Acoustics and Noise Control Laboratory (ANCL)		Performance of noise emissions testing to verify compliance with acoustics requirements for the spacecraft environment; on-orbit acoustic measurements and analyses and reports; acoustic modeling and characterization of spacecraft acoustical environments; development and recommendation for noise controls and methods to mitigate acoustical risks; investigatation and recommendation for acoustic materials	SA	JSC	241	1000D, 1000E, 1000F
2.4.2	Core Analytical Laboratory	Lab/R&D	Enhanced cellular and biological analytical capabilities; instruments are available for any investigator who acquires the appropriate training and abides by the policy and safety standards of the lab	SA	JSC	37	177, 1010, 1010A, 170, 172A, 172AA, 173
2.4.3	Environmental Health Laboratory (EHL)	Lab/R&D	Analyses of personal and area samples for possible workplace exposure to solvents and other organic chemicals, metals, asbestos, mold and fungi; analytical services to JSC Environmental Office and the JSC Environmental Contractor company offices (groundwater profiling, hazardous waste characterization, waste water, potable water, storm water and spill response testing, high-volume gas analysis)	SA	JSC	228	100
2.4.4	Microbiology Laboratory	Lab/R&D	Biosafety level two facility addressing crew health and environmental performance issues related to microbial infection and contamination; operational monitoring and investigative research using classical microbiological, advanced molecular, and immunohistochemical techniques; supports the Biosafety Review Board	SA	JSC	37	174, 1019, 1022, 1200D, 1207, 1207A, 302, 302A
2.4.5	Radiation Laboratories	Lab/R&D	Analysis of cellular and molecular damages in astronauts due to space radiation exposure after long-duration space missions; operational biodosimetry using state-of-the-art cytogenetic biomarkers detection techniques.	SA	JSC	37	1038, 1200A, 1200B, 1211, 1213, 1213A, 1213B, 1233
2.4.5	SRAG Space Radiation Dosimetry Laboratory	Lab/R&D	Crew radiation health risk assessmemt and space radiation monitoring, modeling and assessment. Processing of flight hardware for post-flight data collection and analysis of passive dosimeters; ground support equipment for pre- and post-flight processing of Intravehicular Tissue Equivalent Proportional Counter (IV-TEPC).	SA	JSC	15	233

2.4.5	SRAG Radiation Operations Support Area	Lab/R&D	Crew radiation health risk assessment and space radiation monitoring, modeling and assessment.	SA	JSC	45	502
2.4.5	Health Physics Laboratory	Lab/R&D	Radiation support facility	SA	JSC	263, 263A	
2.4.6	Toxicology and Environmental Chemistry Laboratory (TEC)	Lab/R&D	Aassessments of health hazards associated with all compounds that could enter spacecraft air or water; off gas testing to control airborne contaminants in the spacecraft atmosphere; onboard monitoring, and assessments of toxicological risks to the crew; comprehensive analyses of spacecraft foods; developing technologies for real-time on-orbit water quality monitoring as well the analyzing water samples returned from the ISS.	SA	JSC	37	1208, 1208A, 1208AA, 1210, 149, 149A, 1082B, 1090, 1090AA, 1132, 1132A, 1132B, 1154, 1156, 204, B228.
2.5	**Human Factors Laboratories**						
2.5.1	Anthropometry and Biomechanics Facility (ABF)	Lab/R&D	Develops and evaluates compliance of anthropometric, strength, range of motion and mobility requirements, ergonomic and biomechanic evaluations, suit sizing and volumetric analysis, testing and evaluation of crew work procedures and equipment, and evaluation of spacesuit designs.	SA	JSC	15	1000, 133
2.5.2 / 2.5.4	Graphics Research and Analysis Facility/Lighting Evaluation and Test Facility (GRAF/LETF)	Lab/R&D	Human modeling, computer animation, lighting and viewing analyses; operations analyses for activities internal and external to spacecraft, design concept visualization, and research and development.	SA	JSC	15	119, 125
2.5.3	Habitability Design Center (HDC)	Lab/R&D	Development of early and iterative conceptual designs, models and mockups of habitation systems, hardware and architectural concepts, as well as evaluations of crew interface designs and operating concepts.	SA	JSC	15	248
2.5.5	Space Food Systems Laboratory (SFSL)	Lab/R&D	Multipurpose facility for space food and packaging research and development. The SFSL designs, develops, evaluates and produces flight food, menus, packaging and food-related ancillary hardware for the ISS and the HRP Advanced Food Technology Project	SA	JSC	17	1025, 1025A, 1025 C-E,1025AA, 1025B, 1027, 1030, 1030A, 1030AB, 1032, 1069, 1069A, 1070 *NOTE ABOUT ROOM NUMBERS: (ROOM1069A HAS BEEN RENAMED TO 1032A - NOT AVAILABLE IN DROP DOWN MENU. ALSO ONLY A PORTION OF ROOM 1032 IS USED BY SFSL.)*
2.5.6	Usability Testing and Analysis Facility (UTAF)	Lab/R&D	Human factors evaluation and usability testing of crew/vehicle interfaces; performs human factors research, advocates for the user populations (the crew and ground personnel), facilitates for human-centered design, evaluates user interface designs via heuristic and established usability evaluation methods and space human factors research.	SA	JSC	15	235, 249, 271
2.5.7	Behavioral Health and Performance Laboratory	Lab/R&D	Implementation of research tasks for Team, Behavioral Medicine and Fatigue/Sleep; developing evaluation and validation strategies for tools under consideration for Transition to Operations. Supporting and facilitating external investigators; performing internal NASA data analysis for BHP risks.	SA	JSC	37	2nd floor
3.0	**Engineering, Research and Project Management**						
3.3.3, 3.3.7, 4.3.4	Telescience Support Center	Technical	TSC includes but is not limited to: the configuration and development of the TSC data system as well as coordination with TSC Operations and Huntsville Operations Support Center (HOSC) data regarding the configuration of Payload Data Services Switch (PDSS) streams based on the Data Requirements Document (DRD) & Ground Data Services (GDS) documents.	SA	JSC	30	217, 30A/3069
4.0	**Integration**						
4.3.4	Human Research Facility (HRF) Rack Processing Facility	Technical	Provides capability for assembly, integration, checkout, test and evaluation of GFE and Flight Hardware supporting HRF Rack systems.	SA	JSC	241	100, 1000A, 100A, 100B, 100, 100D, 100E, 100F, 100G, 100H, 100J
4.6	Mission and Medical Information System (formerly CMIS)	Technical	Servers in Bldg 46 for management of medical informatics and health care systems information technology resources; data in the system covers the Mission Extended Medical Enterprise (MEME), real time point of care services to the Flight Medicine Clinic and Occupational Medicine Clinic, and the Longitudinal Study of Astronaut Health (LSAH).	SA	JSC	46	3d Floor
	SA-Utilized Laboratories and Facilities						
4.3.4	ISSMP Payload Development Lab	Lab/R&D	The ISSMP Payload Development Lab (PDL) is part of the ISS Full Scale Mockup. The PDL provides training of Payload Support personnel, crew training, and on-orbit operations such as troubleshooting, maintenance and operations.	MOD	JSC	9	1101 (high bay)
	Vibration Lab	Lab/Testing	Vibration testing	ES	JSC/ES	49	
	W&CG facility	Lab/Testing	Weight and center of gravity measurements	EA	JSC/EA	36	
	EMI/EMC Lab	Lab/Testing	EMI/EMC Testing	EV	JSC/EV	14	
	Power Quality lab	Lab/Testing	Power quality testing	EP	JSC/EP	361	
	RITF	Lab/Testing	Workmanship standard training, ESD training, parts acceptance testing, failure analysis, materials analysis	NT	JSC/NT	15	
	Advanced Materials Test Lab	Lab/Testing	Destructive, acceptance and qualification testing	ES	JSC/ES	9S, 13	
	Contractor-Provided, Offsite Laboratories and Facilities						
2.1.1	Behavioral Health and Performance Video Collection	Media Lab	Recording and transferring media files for crew psychological support (e.g., crew preference movies, TV shows, podcasts). Development and operations of custom websites for crew to maintain contact/communication with family, friends during missions. DVDs are purchased, digitized and uplinked to ISS. Full e-library stored on Media Room workstation. Houses digital recording equipment; subscription services (e.g., cable or dish networks) or on-demand streaming services.	SA	Offsite	Offsite	

2.0	The Cross Development/Montgomery LP "Westland Bunker"	Storage	Freezer storage for archived biomedical samples	SA	Offsite	Conroe, TX	
3.2.2	Hardware Fabrication, Assembly and Test	Technical, Lab/R&D	Capability to prototype, develop, assemble, checkout and test flight hardware, including both large-scale GFE projects, and modified Commercial-of-the-Shelf (COTS) GFE projects. Rapid prototyping (wood, FoamCor, 3D printing, milling, machining, softgood manufacturing, bonded storage.	SA	Offsite	Offsite	
2.5.4	Lighting Evaluation and Test Facility (LETF)	Lab/R&D	Capability to demonstrate, test, and measure broad range of lighting systems and optical devices, as well as the material properties of hardware that affect lighting and viewing, including surfaces properties of color and specularity, and the transmissivity of windows, visors, lenses and similar systems. Windowless location w/ flat black, non-specular surfaces. Storage/power for specialized lighting systems and measurement/instrumentation.	SA	Offsite	Offsite	
2.1.1/3.3	Medical Simulation Lab	Lab/R&D	End to end simulation of medical events and operations to support development, validation, and training for medical operation concepts and unique hardware. Hosts patient simulators and GFE medical hardware devices including physiological monitoring and imaging. Provides for simulation of space to ground communications, including time delay.	SA	Offsite	Offsite	
2.5.5	Space Food Research Facility	Production/Lab/R&D	The Space Food Research Facility is located in the Electron Beam Food Processing Facility in the Research Park West of the Texas A&M campus. It includes a retort, a freeze-dryer, packaging equipment and other smaller equipment needed to process food. This facility is used to prepare and process custom formulated thermostabilized pouched food items for the International Space Station. Facility presently maintained via subcontract with incumbent contractor.	SA	Texas A&M	College Station, TX	Electron Beam Food Processing Facility/Research Park West.
2.0	Treadmill 2 Engineering Unit		Houses Ground Test Article for Treadmill 2, including ground support equipment and instrumentation and system problem resolution for the on-orbit unit.	SA	Offsite	Offsite	

Human Health and Performance Contract (HHPC)

Export Control Plan

Attachment J-29

Export Control Plan

Attachment J-29, Export Control Plan, shall describe the contractor's planned approach for accomplishing contract functions, while strictly adhering to export laws, regulations, and directives.

The Export Control Plan shall address contractor processes that will provide for Export Control compliance for hardware, technical data, and software developed in accordance with DRD HHPC-BP-04.

Human Health and Performance Contract (HHPC)

Flight Products Qualification Plan

Attachment J-30

Flight Products Qualification Plan

Attachment J-30, Flight Products Qualification Plan, shall document the contractor's approach to qualifying flight products; specifically the processes of testing, analysis, demonstration, and inspection methods used to certify flight products as required by DRD-HHPC-RV-11.

Human Health and Performance Contract (HHPC)

Software Development Plan

Attachment J-31

Software Development Plan

Attachment J-31, Software Development Plan, shall document the contractor's planned approach to software acquisition, development, assurance, certification, verification, delivery, and operation utilization. The plan shall also describe the contractor's use of commercial off-the-shelf (COTS) software as required by DRD HHPC-SW-02.

Human Health and Performance Contract (HHPC)

Software Assurance Plan

Attachment J-32

Software Assurance Plan

Attachment J-32, Software Assurance Plan, shall document the contractor's planned approach to software assurance including Quality Assurance, Quality Engineering, Verification and Validation, Non-conformance Reporting and Corrective Action, Safety Assurance, Software Reliability, and Security Assurance.

The Software Assurance Plan shall also identify the software assurance approval authority responsible for the establishment, and composition of all software baselines, and any changes to the baseline as required by DRD HHPC-SW-05.

SECTION K – REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS

K.1 LISTING OF PROVISIONS INCORPORATED BY REFERENCE

Provision(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Provisions incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the provision to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire provision.

The following contract provisions pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

NONE INCORPORATED BY REFERENCE

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

NONE INCORPORATED BY REFERENCE

(End of Provision)

K.2 52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (NOV 2014)

(a)

1) The North American Industry Classification System (NAICS) code for this acquisition is **541712**.
2) The small business size standard is **1000**.
3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)

1) If the provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (d) of this provision applies.
2) If the provision at 52.204-7 is not included in this solicitation, and the offeror is currently registered in the System for Award Management (SAM), and has completed the Representations and Certifications section of SAM electronically, the offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

   [ ] (i) Paragraph (d) applies.
   [ ] (ii) Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c)

1) The following representations or certifications in SAM are applicable to this

solicitation as indicated:

i) (i) 52.203-2, Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless—
   (A) The acquisition is to be made under the simplified acquisition procedures in Part 13;
   (B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or
   (C) The solicitation is for utility services for which rates are set by law or regulation.

ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed $150,000.

iii) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the provision at 52.204-7, System for Award Management.

iv) 52.204-5, Women-Owned Business (Other Than Small Business). This provision applies to solicitations that—
   (A) Are not set aside for small business concerns;
   (B) Exceed the simplified acquisition threshold; and
   (C) Are for contracts that will be performed in the United States or its outlying areas.

v) 52.209-2, Prohibition on Contracting with Inverted Domestic Corporations—Representation. This provision applies to solicitations using funds appropriated in fiscal years 2008, 2009, 2010, or 2012.

vi) 52.209-5, Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

vii) 52.214-14, Place of Performance—Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.

viii) 52.215-6, Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

ix) 52.219-1, Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.
   (A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.
   (B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.

x) 52.219-2, Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.

xi) 52.222-22, Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at 52.222-26, Equal Opportunity.

xii) 52.222-25, Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at 52.222-26, Equal Opportunity.

xiii) 52.222-38, Compliance with Veterans' Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the

contract is not for acquisition of commercial items.

xiv) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA–designated items; or include the clause at 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts.

xv) 52.223-4, Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA–designated items.

xvi) 52.225-2, Buy American Certificate. This provision applies to solicitations containing the clause at 52.225-1.

xvii) 52.225-4, Buy American—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternates I, II, and III.) This provision applies to solicitations containing the clause at 52.225-3.

(A) If the acquisition value is less than $25,000, the basic provision applies.

(B) If the acquisition value is $25,000 or more but is less than $50,000, the provision with its Alternate I applies.

(C) If the acquisition value is $50,000 or more but is less than $79,507, the provision with its Alternate II applies.

(D) If the acquisition value is $79,507 or more but is less than $100,000, the provision with its Alternate III applies.

xviii) 52.225-6, Trade Agreements Certificate. This provision applies to solicitations containing the clause at 52.225-5.

xix) 52.225-20, Prohibition on Conducting Restricted Business Operations in Sudan—Certification. This provision applies to all solicitations.

xx) 52.225-25, Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran-Representation and Certifications. This provision applies to all solicitations.

xxi) 52.226-2, Historically Black College or University and Minority Institution Representation. This provision applies to solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions.

2) The following certifications are applicable as indicated by the Contracting Officer:

i) [ ] 52.204-17, Ownership or Control of Offeror.

ii) [ ] 52.222-18, Certification Regarding Knowledge of Child Labor for Listed End Products.

iii) [ ] 52.222-48, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment- Certification.

iv) [ ] 52.222-52, Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Certification.

v) [ ] 52.223-9, with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA–Designated Products (Alternate I only).

vi) [ ] 52.227-6, Royalty Information.

(A) Basic.

(B) Alternate I.

vii) [X] 52.227-15, Representation of Limited Rights Data and Restricted Computer Software.

(d) The offeror has completed the annual representations and certifications electronically via the SAM website accessed through http://www.acquisition.gov. After reviewing the SAM database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this

solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [offeror to insert changes, identifying change by clause number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause # Title Date Change

_____ _____ _____ _____

Any changes provided by the Offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on SAM.

(End of Provision)

K.3 52.209-7 INFORMATION REGARDING RESPONSIBILITY MATTERS. (JUL 2013)

(a) Definitions. As used in this provision—

"Administrative proceeding" means a non-judicial process that is adjudicatory in nature in order to make a determination of fault or liability (e.g., Securities and Exchange Commission Administrative Proceedings, Civilian Board of Contract Appeals Proceedings, and Armed Services Board of Contract Appeals Proceedings). This includes administrative proceedings at the Federal and State level but only in connection with performance of a Federal contract or grant. It does not include agency actions such as contract audits, site visits, corrective plans, or inspection of deliverables.

"Federal contracts and grants with total value greater than $10,000,000" means—

1) The total value of all current, active contracts and grants, including all priced options; and
2) The total value of all current, active orders including all priced options under indefinite-delivery, indefinite-quantity, 8(a), or requirements contracts (including task and delivery and multiple-award Schedules).

"Principal" means an officer, director, owner, partner, or a person having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a division or business segment; and similar positions).

(b) The Offeror [ ] has [ ] does not have current active Federal contracts and grants with total value greater than $10,000,000.

(c) If the Offeror checked "has" in paragraph (b) of this provision, the Offeror represents, by submission of this offer, that the information it has entered in the Federal Awardee Performance and Integrity Information System (FAPIIS) is current, accurate, and complete as of the date of submission of this offer with regard to the following information:

1) Whether the Offeror, and/or any of its principals, has or has not, within the last five

years, in connection with the award to or performance by the Offeror of a Federal contract or grant, been the subject of a proceeding, at the Federal or State level that resulted in any of the following dispositions:

i) In a criminal proceeding, a conviction.

ii) In a civil proceeding, a finding of fault and liability that results in the payment of a monetary fine, penalty, reimbursement, restitution, or damages of $5,000 or more.

iii) In an administrative proceeding, a finding of fault and liability that results in—

(A) The payment of a monetary fine or penalty of $5,000 or more; or

(B) The payment of a reimbursement, restitution, or damages in excess of $100,000.

iv) In a criminal, civil, or administrative proceeding, a disposition of the matter by consent or compromise with an acknowledgment of fault by the Contractor if the proceeding could have led to any of the outcomes specified in paragraphs (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this provision.

2) If the Offeror has been involved in the last five years in any of the occurrences listed in (c)(1) of this provision, whether the Offeror has provided the requested information with regard to each occurrence.

(d) The Offeror shall post the information in paragraphs (c)(1)(i) through (c)(1)(iv) of this provision in FAPIIS as required through maintaining an active registration in the System for Award Management database via http://www.acquisition.gov (see 52.204-7).

(End of Provision)

K.4 52.230-1 COST ACCOUNTING STANDARDS, NOTICES, AND CERTIFICATION. (MAY 2012)

Note: This notice does not apply to small businesses or foreign governments. This notice is in three parts, identified by Roman numerals I through III.

Offerors shall examine each part and provide the requested information in order to determine Cost Accounting Standards (CAS) requirements applicable to any resultant contract.

If the Offeror is an educational institution, Part II does not apply unless the contemplated contract will be subject to full or modified CAS coverage pursuant to 48 CFR 9903.201-2(c)(5) or 9903.201-2(c)(6), respectively.

I. Disclosure Statement—Cost Accounting Practices and Certification

(a) Any contract in excess of $700,000 resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR Chapter 99), except for those contracts which are exempt as specified in 48 CFR 9903.201-1.

(b) Any Offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of 48 CFR Chapter 99 must, as a condition of contracting, submit a Disclosure Statement as required by 48 CFR 9903.202. When required, the Disclosure Statement must be

submitted as a part of the Offeror's proposal under this solicitation unless the Offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal. If an applicable Disclosure Statement has already been submitted, the Offeror may satisfy the requirement for submission by providing the information requested in paragraph (c) of Part I of this provision.

Caution: In the absence of specific regulations or agreement, a practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed-to practice for pricing proposals or accumulating and reporting contract performance cost data.

(c) Check the appropriate box below:

1) [ ] Certificate of Concurrent Submission of Disclosure Statement. The Offeror hereby certifies that, as a part of the offer, copies of the Disclosure Statement have been submitted as follows:
   i) Original and one copy to the cognizant Administrative Contracting Officer (ACO) or cognizant Federal agency official authorized to act in that capacity (Federal official), as applicable; and
   ii) One copy to the cognizant Federal auditor.

(Disclosure must be on Form No. CASB DS-1 or CASB DS-2, as applicable. Forms may be obtained from the cognizant ACO or Federal official and/or from the loose-leaf version of the Federal Acquisition Regulation.)

Date of Disclosure Statement: _____

Name and Address of Cognizant ACO or Federal Official Where Filed:
_____

The Offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement.

2) [ ] Certificate of Previously Submitted Disclosure Statement. The Offeror hereby certifies that the required Disclosure Statement was filed as follows:

Date of Disclosure Statement: _____

Name and Address of Cognizant ACO or Federal Official Where Filed:
_____

The Offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the applicable Disclosure Statement.

3) [ ] Certificate of Monetary Exemption. The Offeror hereby certifies that the Offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated prime contracts and subcontracts subject to CAS totaling $50 million or more in the cost accounting period immediately preceding the period in which this proposal was submitted. The Offeror further certifies that if such status changes before an award resulting from this proposal, the Offeror will advise the Contracting Officer immediately.

4) [ ] Certificate of Interim Exemption. The Offeror hereby certifies that (i) the Offeror

first exceeded the monetary exemption for disclosure, as defined in (3) of this subsection, in the cost accounting period immediately preceding the period in which this offer was submitted and (ii) in accordance with 48 CFR 9903.202-1, the Offeror is not yet required to submit a Disclosure Statement. The Offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, the Offeror will immediately submit a revised certificate to the Contracting Officer, in the form specified under paragraph (c)(1) or (c)(2) of Part I of this provision, as appropriate, to verify submission of a completed Disclosure Statement.

Caution: Offerors currently required to disclose because they were awarded a CAS-covered prime contract or subcontract of $50 million or more in the current cost accounting period may not claim this exemption (4). Further, the exemption applies only in connection with proposals submitted before expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.

II. Cost Accounting Standards—Eligibility for Modified Contract Coverage

If the Offeror is eligible to use the modified provisions of 48 CFR 9903.201-2(b) and elects to do so, the Offeror shall indicate by checking the box below. Checking the box below shall mean that the resultant contract is subject to the Disclosure and Consistency of Cost Accounting Practices clause in lieu of the Cost Accounting Standards clause.

[ ] The Offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 48 CFR 9903.201-2(b) and certifies that the Offeror is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because during the cost accounting period immediately preceding the period in which this proposal was submitted, the Offeror received less than $50 million in awards of CAS-covered prime contracts and subcontracts. The Offeror further certifies that if such status changes before an award resulting from this proposal, the Offeror will advise the Contracting Officer immediately.

Caution: An Offeror may not claim the above eligibility for modified contract coverage if this proposal is expected to result in the award of a CAS-covered contract of $50 million or more or if, during its current cost accounting period, the Offeror has been awarded a single CAS-covered prime contract or subcontract of $50 million or more.

III. Additional Cost Accounting Standards Applicable to Existing Contracts

The Offeror shall indicate below whether award of the contemplated contract would, in accordance with paragraph (a)(3) of the Cost Accounting Standards clause, require a change in established cost accounting practices affecting existing contracts and subcontracts.

o Yes o No

(End of provision)

K.5 52.230-7 PROPOSAL DISCLOSURE – COST ACCOUNTING PRACTICE. (APR 2005)

The Offeror shall check “yes" below if the contract award will result in a required or unilateral change in cost accounting practice, including unilateral changes requested to be desirable changes.

[ ] yes [ ] no

If the Offeror checked ``Yes" above, the Offeror shall--

(1) Prepare the price proposal in response to the solicitation using the changed practice for the period of performance for which the practice will be used; and

(2) Submit a description of the changed cost accounting practice to the Contracting Officer and the Cognizant Federal Agency Official as pricing support for the proposal.

(End of Provision)

K.6 1852.225-72 RESTRICTION ON FUNDING ACTIVITY WITH CHINA – REPRESENTATION. (FEB 2012)

(a) Definition - “China” or “Chinese-owned” means the People’s Republic of China, any company owned by the People’s Republic of China or any company incorporated under the laws of the People’s Republic of China.

(b) Public Laws 112-10, Section 1340(a) and 112-55, Section 536, restrict NASA from contracting to participate, collaborate, or coordinate bilaterally in any way with China or a Chinese-owned company with funds appropriated on or after April 25, 2011. Contracts for commercial and non-developmental items are accepted from the prohibition as they constitute purchase of goods or services that would not involve participation, collaboration, or coordination between the parties.

(c) Representation. By submission of its offer, the Offeror represents that the Offeror is not China or a Chinese-owned company.

(End of Provision)

[END OF SECTION]

SECTION L INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

L.1 LISTING OF PROVISIONS INCORPORATED BY REFERENCE

Provision(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Provisions incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the provision to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire provision.

The following contract provisions pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

52.211-14 NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE, EMERGENCY PREPAREDNESS, AND ENERGY PROGRAM USE (APR 2008)
Insert: "DO-C9"

52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)

52.214-35 SUBMISSION OF OFFERS IN US CURRENCY (APR 1991)

52.215-1 INSTRUCTIONS TO OFFERORS - COMPETITIVE ACQUISITION (JAN 2004)

52.215-16 FACILITIES CAPITAL COST OF MONEY (JUN 2003)

52.215-22 LIMITATIONS ON PASS-THROUGH CHARGES - IDENTIFICATION OF SUBCONTRACT EFFORT (OCT 2009)

52.222-24 PREAWARD ON-SITE EQUAL OPPORTUNITY COMPLIANCE EVALUATION (FEB 1999)

52.222-46 EVALUATION OF COMPENSATION FOR PROFESSIONAL EMPLOYEES (FEB 1993)

52.237-1 SITE VISIT (APR 1984)

52.237-10 IDENTIFICATION OF UNCOMPENSATED OVERTIME (OCT 1997)

II **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

1852.227-71 REQUESTS FOR WAIVER OF RIGHTS TO INVENTIONS (APR 1984)

1852.228-80 INSURANCE – IMMUNITY FROM TORT LIABILITY (SEPT 2000)

(End of Provisions)

L.2 52.215-20 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (ALTERNATE IV). (OCT 2010)

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

(b) Provide information described below:
See Provision L.22.5, Volume III – Cost/Price Proposal

(End of Provision)

L.3 52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates issuing an Indefinite Delivery, Indefinite Quantity (IDIQ) contract with Cost Reimbursable (CR)/Award Fee and Firm-Fixed Price Task/Delivery Orders. Upon award the Government intends to issue both CR completion form and term Task/Delivery Orders to execute the requirements listed in the Statement of Work (SOW). All costs associated with the phase-in of this Contract are firm-fixed price.

(End of Provision)

L.4 52.233-2 SERVICE OF PROTEST (SEP 2006)

(a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

Hand Carried
Call Roger Roberts, Contracting Officer, at 281-483-2916 prior to arrival

U.S. Mail Address:
Name: Roger Roberts, Mail Code: BH
NASA Johnson Space Center
HHPC Solicitation NNJ15522169R
ATTN: Roger Roberts
2101 NASA Parkway
Houston TX 77058-3696

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of Provision)

L.5 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

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

full text available. The Offeror is cautioned that the listed provisions may include blocks that must be completed by the Offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the Offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these addresses:

Federal Acquisition Regulation (FAR) provisions: : http://www.acquisition.gov/far/

NASA FAR Supplement (NFS) provisions:
http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm

(End of Provision)

L.6 52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS. (APR 1984)

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

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

(End of Provision)

L.7 1852.215-77 PRE-PROPOSAL/ PRE-BID CONFERENCE (DEC 1988)

(a) A pre-proposal/pre-bid conference will be held as indicated below:
Date: September 30, 2014
Time: 9:00 a.m. – 12:00 p.m. local time
Location: Gilruth Center, Alamo Ballroom, NASA/JSC Houston, TX 77058
Other Information, as applicable: for additional information reference the HHPC Acquisition Website at http://procurement.jsc.nasa.gov/hhpc

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

(End of Provision)

L.8 RESERVED

L.9 1852.223-73 SAFETY AND HEALTH PLAN (NOV 2004)

(a) The Offeror shall submit a detailed safety and health plan as part of its proposal (see NPR 8715.3, NASA Safety Manual, Appendices). The plan shall include a detailed discussion of the policies, procedures, and techniques that will be used to ensure the safety and occupational health of Contractor employees and to ensure the safety of all working conditions throughout the performance of the contract.

(b) When applicable, the plan shall address the policies, procedures, and techniques that will be used to ensure the safety and occupational health of the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), and high-value equipment and property.

(c) The plan shall similarly address subcontractor employee safety and occupational health for those proposed subcontracts that contain one or more of the following conditions:

1) The work will be conducted completely or partly on premises owned or controlled by the Government.
2) The work includes construction, alteration, or repair of facilities in excess of the simplified acquisition threshold.
3) The work, regardless of place of performance, involves hazards that could endanger the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), or high-value equipment or property, and the hazards are not adequately addressed by Occupational Safety and Health Administration (OSHA) or Department of Transportation (DOT) regulations (if applicable).
4) When the assessed risk and consequences of a failure to properly manage and control the hazards warrants use of the clause.

(d) This plan, as approved by the Contracting Officer, will be included in any resulting contract.

(End of Provision)

L.10 RESERVED

L.11 1852.231-71 DETERMINATION OF COMPENSATION REASONABLENESS (MAR 1994)

(a) The proposal shall include a total compensation plan (DRD HHPC-MGMT-07). This plan shall address all proposed labor categories, including those personnel subject to union agreements, the Service Contract Act, and those exempt from both of the above. The total compensation plan shall include the salaries/wages, fringe benefits and leave programs proposed for each of these categories of labor. The plan also shall include a discussion of the consistency of the plan among the categories of labor being proposed. Differences between benefits offered professional and non-professional employees shall be highlighted. The requirements of this plan may be combined with that required by the clause at FAR 52.222-46, Evaluation of Compensation for Professional Employees.

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

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

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

part of their proposals the information identified in (a) through (c) of this provision.

(End of Provision)

L.12 1852.233-70 PROTESTS TO NASA (OCT 2002)

Potential bidders or Offerors may submit a protest under 48 CFR Part 33 and FAR Part 33 (Protests, Disputes, & Appeals) directly to the Contracting Officer. As an alternative to the Contracting Officer's consideration of a protest, a potential bidder or Offeror may submit the protest to the Assistant Administrator for Procurement, who will serve as or designate the official responsible for conducting an independent review. Protests requesting an independent review shall be addressed to Assistant Administrator for Procurement, NASA Code H, Washington, DC 20546-0001.

(End of Provision)

L.13 1852.245-80 GOVERNMENT PROPERTY MANAGEMENT INFORMATION. (JAN 2011)

(a) The Offeror shall identify the industry leading or voluntary consensus standards, and/or the industry leading practices, that it intends to employ for the management of Government property under any contract awarded from this solicitation.

(b) The Offeror shall provide the date of its last Government property control system analysis along with its overall status, a summary of findings and recommendations, the status of any recommended corrective actions, the name of the Government activity that performed the analysis, and the latest available contact information for that activity.

(c) The Offeror shall identify any property it intends to use in performance of this contract from the list of available Government property in the provision at 1852.245–81, List of Available Government Property.

(d) The Offeror shall identify all Government property in its possession, provided under other Government contracts that it intends to use in the performance of this contract. The Offeror shall also identify: The contract that provided the property, the responsible Contracting Officer, the dates during which the property will be available for use (including the first, last, and all intervening months), and, for any property that will be used concurrently in performing two or more contracts, the amounts of the respective uses in sufficient detail to support prorating the rent, the amount of rent that would otherwise be charged in accordance with FAR 52.245–9, Use and Charges (June 2007), and the contact information for the responsible Government Contracting Officer. The Offeror shall provide proof that such use was authorized by the responsible Contracting Officer.

(e) The Offeror shall disclose cost accounting practices that allow for direct charging of commercially available equipment, when commercially available equipment is to be used in performance of the contract and the equipment is not a deliverable.

(f) The Offeror shall identify, in list form, any equipment that it intends to acquire and directly charge to the Government under this contract. The list shall include a description, manufacturer, model number (when available), quantity required, and estimated unit cost.

Equipment approved as part of the award need not be requested under NFS clause 1852.245-70,

(g) The Offeror shall disclose its intention to acquire any parts, supplies, materials or equipment, to fabricate an item of equipment for use under any contract resulting from this solicitation when that item of equipment:

Will be titled to the government under the provisions of the contract; is not included as a contract deliverable; and the Contractor intends to charge the costs of materials directly to the contract. The disclosure shall identify the end item or system and shall include all descriptive information, identification numbers (when available), quantities required and estimated costs.

(h) Existing Government property may be reviewed at the following locations, dates, and times: Not Applicable

Note: Information required in NFS 1852.245-80 shall be submitted as a separate tab after the Property Management Plan."

(End of Provision)

L.14 1852.245-81 LIST OF AVAILABLE GOVERNMENT PROPERTY (JAN 2011)

(a) The Government will make the following Government property available for use in performance of the contract resulting from this solicitation, on a no-charge-for-use basis in accordance with FAR 52.245-1, Government Property. The Offeror shall notify the Government, as part of its proposal, of its intention to use or not use the property.

See Attachment J.4 List of Government Furnished Property

(b) The Government will make the following Government property available for use in performance of the Contract resulting from this solicitation, on a no-charge-for-use basis in accordance with FAR 52.245-2, Government Property Installation Operation Services. The Offeror shall notify the Government of its intention to use or not use the property.

Paragraph (b) is not applicable to this RFP/Contract.

(c) The selected contractor will be responsible for costs associated with transportation, and installation of the property listed in this provision.

(End of Provision)

L.15 52.242-90 JSC SUPER-FLEX WORK SCHEDULE (MAR 2014) (JSC PROCUREMENT INSTRUCTION)

Through Super-flex, JSC civil servants are encouraged to utilize the current civil service schedule to work 80 hours in a pay period, while "flexing" every other Friday simultaneously with the Center (first Friday of the JSC pay period). These Fridays are called "Flex Fridays". Super-flex also expands the use of Work from Anywhere (WFA)/telework.

JSC does not require that our contractor team members adopt a matching schedule. However,

Offerors should be aware that many civil servant customers will not be onsite on “Flex Fridays” and the center will go in “weekend mode” on “Flex Fridays”. "Flex Friday weekend mode" provides exceptions for some buildings. For more information on "Flex Friday weekend mode" and Super-flex, reference http://procurement.jsc.nasa.gov/docs/Super-Flex Phase 2.docx.

(End of provision)

L.16 52.215-109 PROPOSAL MARKING AND DELIVERY (AUG 2012) (JSC PROCUREMENT INSTRUCTION)

(a) Methods of Proposal Delivery

Proposals shall be delivered to the designated proposal receiving office by one of the following methods:

U.S. Postal Service
Commercial Delivery Service
Delivery by company employee or other individual agent

Regardless of the method of delivery chosen, the Offeror is responsible for delivery of the proposal to the designated receiving office no later than the date and time stated on the Standard Form.

(b) External Marking of Proposal Package(s)

All proposal packages must be closed, sealed, and marked in large letters “PROPOSAL – DELIVER UNOPENED”. Proposals packages must include the solicitation number, the contracting officer’s name, mail code/stop, and the Offeror’s name and address clearly marked on the outside of the package.

The Offeror shall include a notice on the cover of the proposal package as follows: “NOTICE: THIS PROPOSAL MUST BE DELIVERED TO THE SPECIFIED ADDRESS NO LATER THAN (OFFEROR—ENTER DATE AND TIME).”

(c) Delivery Address

Proposals must be delivered to:

NASA Johnson Space Center
Attention: Roger Roberts, Contracting Officer/BH
Central Receiving, Bldg. 420
2101 NASA Parkway
Houston, TX 77058-3696

JSC Central Receiving can only be accessed through JSC Gate 4, which is located off Space Center Boulevard. The Offeror is strongly encouraged to notify the Contracting Officer one day in advance of the proposal submission. Proposals will be considered to be timely if the proposal package arrives in Building 420 by the due date and time.

(End of provision)

L.17 AVAILABILITY OF SPECIFICATIONS

(a) All Federal, Military, NASA, other Government Standards and Specifications, and technical documentation incorporated directly by reference in this solicitation may be obtained from the HHPC Technical Library which is available on-line at:

http://procurement.jsc.nasa.gov/hhpc

(b) All Federal, Military, NASA, other Government Standards and Specifications, and technical documentation not contained in the HHPC Technical Library may be obtained by submittal of a request on or before October 24, 2014 to:

Name: Roger Roberts, Mail Code: BH
E-mail: roger.m.roberts@nasa.gov
Address: NASA Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

The request should identify the solicitation number and the specification requested by date, title, and number, as cited in the solicitation.

(c) Voluntary standards, such as industrial, manufacturing, independent laboratory, society, and institutional associations (non-Government organizations) codes, standards, specifications, and technical documents incorporated by reference in this solicitation must be obtained, at the bidder's expense, from the organization that develops, establishes and/or publishes those documents.

(d) The Contracting Officer will furnish, upon request, copies of NASA quality documents referenced in the solicitation.

(End of Provision)

L.18 NOTICE OF POTENTIAL ORGANIZATIONAL CONFLICTS OF INTEREST (OCI)

(a) Notice. The Contracting Officer has determined that this acquisition may give rise to an organizational conflict of interest (OCI). Accordingly, the attention of prospective Offerors is invited to FAR Subpart 9.5 - Organizational Conflicts of Interest. In accordance to the Section L, Volume IV requirements, an Offeror must submit an Organizational Conflict of Interest (OCI) Mitigation Plan as part of its proposal. The Contracting Officer has the sole authority to determine whether an organizational conflict of interest exists and to determine whether the organizational conflict of interest has been reasonably resolved. The OCI Mitigation Plan will not be evaluated as part of mission suitability. However, an acceptable OCI Mitigation Plan (including strategies for mitigating any identified OCIs) is an eligibility requirement for consideration of the Offeror’s proposal and award of the HHPC contract (DRD-HHPC-MGMT-10). As such, the Government may communicate with any Offeror at any time during the evaluation process concerning its OCI Mitigation Plan. This OCI Mitigation Plan, as approved by the Government, will be included in any resulting contract as a compliance document.

(b) Description of Potential Conflict. The nature of these organizational conflicts of interest is:

1) Impaired objectivity. The potential OCI is that a successful prime contractor (including a newly-formed joint venture) or first tier subcontractor having a financial interest in existing contracts for NASA spacecraft, spacecraft instruments, flight software, and/or ground networks systems will have a bias that may influence its exercise of judgment in performing the work under the HHPC contract. There is a presumption that Offerors having such an impaired objectivity OCI will be ineligible for award, though the Government recognizes that an acceptable OCI mitigation strategy may be presented that overcomes this presumption;

2) Biased Ground Rules. There is a concern that the successful Offeror in performing studies, analyses, and specification/requirements under this contract will have an unfair competitive advantage in future competitions that use or rely on this HHPC work. There is a presumption that Offerors having such a biased ground rules OCI will be ineligible for award, though the Government recognizes that an acceptable OCI mitigation strategy may be presented that overcomes this presumption; and

3) Unequal Access to Information. There is a concern that the contractor will acquire nonpublic information (including proprietary and/or commercially-sensitive information) in performing the contract that may provide the contractor will an unfair competitive advantage in later competitions for a Government contract.

Potential types of tasks which could lead to potential OCI issues where such an OCI may arise include (but not limited to):

i) Assessment of component and system designs, analysis, models developed for the ISS, EVA, Orion/MPCV, commercial crew or cargo providers;
ii) Assessment of hardware designs, analysis, models developed for the Human Health and Performance Directorate by contractors other than the HHPC contractor;
iii) Design, development, test and evaluation including certification and fabrication of hardware including flight hardware and software.

(c) Responsibility of Offeror. (1) Applying the principles of FAR Subpart 9.5, each Offeror shall assess whether there is an organizational conflict of interest associated with the proposal it submits. The Offeror must explain the actions it intends to use to resolve any organizational conflicts of interest it finds in the Government's assessment and its own assessment. Offerors shall disclose all relevant information regarding any actual or potential conflicts of interest, including those related to any existing contracts for NASA spacecraft, spacecraft instruments, flight software, and/or ground networks systems in its OCI Mitigation Plan. (2) If the Offeror‘s proposed action to resolve an organizational conflict of interest is not acceptable, the Contracting Officer will notify the Offeror providing the reasons why its proposed resolution is not considered acceptable and allow the Offeror a reasonable opportunity to respond before making a final decision on the organizational conflict of interest and the Offeror's eligibility for contract award.

(d) Representation. By submission of its offer, the Offeror represents, to the best of its knowledge and belief, that – (1) there are no relevant facts that could give rise to an OCI, as defined in FAR Part 2; or (2) the Offeror has disclosed all relevant information regarding any actual or potential conflicts of interest.

(e) Waiver. The agency reserves the right to waive the requirements of FAR 9.5, in accordance with FAR 9.503.

(f) Required OCI Resolution. The use of NFS clause 1852.209-71 entitled "Limitation of Future Contracting".

(End of Provision)

L.19 PROPOSAL ACCEPTANCE PERIOD

Proposals submitted in response to this solicitation shall remain firm for at least **365 calendar days** after the date specified for receipt by the Government and shall contain a statement to this effect.

(End of Provision)

L.20 COMMUNICATIONS REGARDING THIS SOLICITATION

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

Name: Roger Roberts, Mail Code: BH
E-mail: roger.m.roberts@nasa.gov AND jsc-hhpc-1@mail.nasa.gov
Address: NASA Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

Name: John R. Carpentier, Mail Code: BH
E-mail: john.r.carpentier@nasa.gov
Address: NASA Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

QUESTIONS REGARDING THIS SOLICITATION MUST BE PRESENTED IN WRITING and shall be submitted electronically to the above e-mail address by December 12, 2014 at 1:30 PM CDT in order that answers may be obtained and disseminated in a timely manner, since it is not expected that a proposal submission date can be extended. Oral questions are not desirable due to the possibility of misunderstanding or misinterpretation. Questions shall not be directed to the technical activity personnel.

(End of Provision)

L.21 RESERVED

L.22 INSTRUCTIONS FOR PROPOSAL PREPARATION

This section provides detailed instructions to Offerors to be used in the preparation of proposals. It is organized as follows:

L.22.1 Introduction
L.22.2 Proposal Arrangement, Page Limitations, Copies, and Due Dates
L.22.3 Volumes I – Mission Suitability

L.22.4 Volume II – Past Performance
L.22.5 Volume III – Cost/Price Proposal
L.22.6 Volume IV – Model Contract and Responsibility

(End of Provision)

L.22.1 INTRODUCTION

In providing these instructions, the Government's intention is to solicit information that will permit a competitive evaluation of the Offeror's proposal. The information solicited will demonstrate the Offeror's competence and understanding of requirements and the capability to successfully complete the requirements specified in the HHPC Statement of Work (SOW).

(a) Demonstrate understanding of the overall and specific requirements of the proposed Contract; Convey the company's capabilities for transforming understanding into accomplishment; Provide in detail, the plans and methods for so doing; and Provide, as requested below, the cost/price associated with so doing.

(b) The proposal shall be clear, concise, shall not include ambiguous language or terms, and shall include sufficient detail for effective evaluation and substantiation of all information. The proposal should not simply rephrase or restate the Government's requirements, but rather shall provide convincing rationale to address how the Offeror intends to meet these requirements.

(c) Elaborate brochures or documentation, detailed artwork, or other superfluous embellishments are unnecessary and are not desired.

(d) Offerors are requested to provide information responsive to the items set forth below. This information is considered essential for the Government to conduct a fair and uniform evaluation of proposals in accordance with the evaluation factors and sub-factors provided in Section M. The items listed are not, however, all-inclusive and you should include in your proposals any further discussion you believe to be necessary or useful in demonstrating your ability to perform the work under this Contract.

(e) For a more complete understanding of this part of Section L, refer to Section M. The instructions in this part of Section L are directly related to the evaluation factors set forth in Section M.

Table L-1 Cross Reference from Section L to Section M

Title	Section ID	Title	Section ID
Volume I - Mission Suitability	L.22.3	Mission Suitability Factor	M.4
Management Approach, Mission Suitability Sub-factor 1	L.22.3.1	Management Approach, Mission Suitability Sub-factor 1	M.4.1
MA1. Overall Management Approach	L.22.3.1, MA1	MA1. Overall Management Approach	M.4.1, MA1
MA2. Key Personnel Approach	L.22.3.1, MA2	MA2. Key Personnel Approach	M.4.1, MA2
MA3. Staffing Approach	L.22.3.1, MA3	MA3. Staffing Approach	M.4.1, MA3
MA4. Contract Phase-In	L.22.3.1, MA4	MA4. Contract Phase-In	M.4.1, MA4

Approach		Approach	
MA5. Safety and Health Approach	L.22.3.1, MA5	MA5. Safety and Health Approach	M.4.1, MA5
Technical Approach (TA) Mission Suitability Sub-factor 2	L.22.3.2	Technical Approach Mission Suitability Sub-factor 2	M.4.2
TA1. Scenarios	L.22.3.2, TA 1	TA1. Scenarios	M.4.2, TA 1
TA2. IDIQ Task/Delivery Orders	L.22.3.2, TA2	TA2. IDIQ Task/Delivery Orders	M.4.2, TA2
Small Business Utilization (SBU), Mission Suitability Sub-factor 3	L.22.3.3	Small Business Utilization (SBU), Mission Suitability Sub-factor 3	M.4.3
SBU1. Small Business Subcontracting	L.22.3.3, SBU1	SBU 1. Small Business Subcontracting	M.4.3, SBU1
SBU2. Commitment to the Small Business Program	L.22.3.3, SBU2	SBU2. Commitment to the Small Business Program	M.4.3, SBU2
Volume II – Past Performance	L.22.4	Past Performance Factor	M.6
Volume III – Cost/Price	L.22.5	Cost/Price Factor	M.5
Volume IV – Model Contract	L.22.6	Model Contract	M.8

(f) This procurement shall be conducted utilizing a combination of mission suitability, past performance and cost/price factors. The Government seeks to select an Offeror whose proposal represents the best value after evaluation.

(g) An initial review will be conducted to determine acceptability of the proposals. All unacceptable proposals will be eliminated from further evaluation.

(h) The Government reserves the right to award IDIQ Task/Delivery Orders, (Attachment L-3) as proposed. All other work will be authorized on IDIQ Task/Delivery Orders negotiated between the Contractor and the Government. The Offeror should plan adequate support for the Task/Delivery Order process during Phase-In.

The proposal shall be detailed and complete enough to clearly and fully demonstrate that the Offeror understands the requirements and the inherent risks associated with the objectives of this procurement. The Offeror must demonstrate the capability to transform an understanding of the SOW and Task/Delivery Order requirements into accomplishments and deliverables that meet the intent of the SOW and Task/Delivery Orders. It is inadequate to simply state that the Offeror understands and will comply with the requirements, or to paraphrase the requirements such as: “standard procedures will be employed to…” and “well-known techniques will be used for…” The Mission Suitability Proposal shall comprehensively explain how you propose to comply with the applicable specifications, as well as the techniques and procedures you propose to implement.

Information previously submitted, if any, will not be considered unless it is resubmitted as part of the proposal; it must not be incorporated by reference. Offerors must not assume that the

Evaluation Team is aware of their company abilities, capabilities, plans, facilities, organization or any other pertinent fact that is important to the accomplishment of the work.

(End of Provision)

L.22.1.1 PERIOD COVERED BY PROCUREMENT

This solicitation covers an ordering period of 10 years and the 62-day phase-in. For contracting purposes,

Anticipated Dates	Duration	Contractual Coverage
07/31/15 – 09/30/15	62 Days	Phase-In
10/01/15 – 09/30/20	5 Years	Base Period
10/01/20 – 09/30/23	3 Years	Option 1
10/01/23 – 09/30/25	2 Years	Option 2

The option periods identified above will be exercised only if the requirements of FAR 17.207, Exercise of Options, have first been met. The Government is not obligated to exercise any option if it determines for any reason that doing so is not in its best interest.

(End of Provision)

L.22.2 PROPOSAL ARRANGEMENT, PAGE LIMITATIONS, COPIES, AND DUE DATES

(a) Proposal Arrangement
Offerors shall arrange their proposals into four volumes as set forth below.

Table L-2: Overview of Proposal Volumes and Page Limitations

Volume No.	Title	Page Limits	Electronic Format
I	**Mission Suitability**	**375**	
Part 1	**Management Approach (MA1-5)**		
	Contract Management Plan (DRD HHPC-MGMT-01)	Included in 375	MS Word
	Contract Work Breakdown Structure (WBS) and Dictionary (DRD HHPC-MGMT-02)	Included in 375	MS Word
	Information Technology Security Program Plan and Reports (DRD HHPC-IT-02)	Included in 375	MS Word
	Quality Plan (DRD HHPC-SMA-01)	Included in 375	MS Word
	Key Personnel Approach Narrative	Included in 375	MS Word
	Key Personnel Evidence of Commitment	1 page per key person (not Included in 375)	MS Word
	Total Compensation Plan (DRD HHPC-MGMT-07)	Not Included in 375 Page Count	MS Word

Volume No.	Title	Page Limits	Electronic Format
	Staffing and Critical Skills Plan (DRD HHPC-MGMT-04)	Included in 375	MS Word
	Contract Phase-In Plan (DRD HHPC-MGMT-05)	Included in 375	MS Word
	Safety and Health Plan (DRD HHPC-SMA-03)	Not Included in 375 but limited to 50 pages	MS Word
Part 2	**Technical Approach (TA) Mission Suitability Sub-factor 2 (TA1 – TA2)**		
	Narrative – TA1 Scenarios	Included in 375	MS Word
	Narrative – TA2 IDIQ Task Delivery Orders	Included in 375 Note: IDIQ Workbooks are not included in the page count	MS Word
	Technical Innovations Proposed Contract Language (DRD HHPC-MGMT-09)	Included in 375	MS Word
Part 3	**Small Business Utilization, Mission Suitability Sub-factor 3 (SBU1-SBU2)**		
	SBU1, Small Business Subcontracting Plan (DRD HHPC-MGMT-11)	Included in 375	MS Word
	SBU2, Commitment to the Small Business Program	Included in 375	MS Word
II	**Past Performance**	**85**	
	Past Performance Description	Included in 85	MS Word
	L.22. 4, Past Performance Attachments	Not subject to page count limitations	MS Word
	Attachment L–9: Subcontractor/Teaming or Joint Venture Partner/Program Manager Consent for the Release of Past Performance Information to the Prime Contractor	Not subject to page count limitations	MS Word
	Attachment L–10: Past Performance Information Matrix	Not subject to page count limitations	MS Word
III	**Cost/Price Proposal**	**Not Limited**	
	Cost Narrative	Not Limited	MS Word
	Templates	Not Limited	MS Excel
IV	**Model Contract and Responsibility**	**Not Limited**	
	Sections A-J, with all fill-ins completed, and Section K, Representations and Certifications, with all fill-ins completed	Not Limited	MS Word
	Organizational Conflict of Interest Mitigation Plan (DRD HHPC-MGMT-10)	Not Limited	MS Word
	Export Control Plan (DRD HHPC-BP-04)	Not Limited	MS Word

Volume No.	Title	Page Limits	Electronic Format
	Government Property Management Plan (DRD HHPC-BP-09)	Not Limited	MS Word

(b) Volumes shall be separately bound in 3-ring binders that permit the volume to lie flat when open. Staples shall not be used. A cover sheet shall be included on each binder, clearly marked with date of offer, volume number, title, copy number, solicitation number and the Offeror's name. The same identifying data should be placed on the spine of each binder. Information should not be incorporated by reference. A suitable table of contents shall be provided with each volume for ready reference to sections, tables, and figures. Pages shall be formatted in a standard page style, without the use of columns. All pages in each volume shall be numbered sequentially with Arabic numerals for contents subject to page limitations or with lower case Roman numerals for contents not subject to page limitations (cover/title pages, tables of contents, cross reference lists, and acronym lists). Offerors shall tab each subsection within each volume for ease of reference. Tabs and dividers are not included in the page count limitations and will not be evaluated.

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

(d) Pages submitted in excess of the limitations specified in this provision will not be evaluated by the Government and will be returned to the Offeror. For example, if an Offeror submits Volume I with 380 pages, the final 5 pages will be returned to the Offeror and will not be evaluated.

(e) Proposal Copies and Due Dates

Table L-3: Proposal Copies and Due Dates

Due Date	Volume	Title	Time Due	Delivery Location	Copies
January 29, 2015	I	Mission Suitability	1:30 p.m. Local at destination	JSC (See L.16)	6 hard copies, 2 CD-ROM
January 7, 2015	II	Past Performance*	1:30 p.m. Local at destination	JSC (See L.16)	6 hard copies, 2 CD-ROM
January 29, 2015	III	Cost/Price Proposal	1:30 p.m. Local at destination	JSC and DCAA (See L.16)	4 hard copies, 2 CD-ROM (to JSC) 1 hard copy, 1 CD-ROM (to DCAA)
January 29, 2015	IV	Completed Model Contract and Signed SF 33; Representations and	1:30 p.m. Local at destination	JSC (See L.16)	2 originals, 2 CD-ROM (JSC)

		Certifications with all fill-ins completed; DRDs for Responsibility (See Table L-2, Volume IV for DRDs)			

* Proposal Volume II, Past Performance, and the Cognizant Audit Office Template (CAOT) are requested early, but not officially due until January 7, 2015 .

(f) For purposes of the proposal, the electronic formats specified above supersede the format specified in the DRDs in Attachment J-2.

(g) The proposal text shall be printed on non-glossy white 8 ½ x 11-inch paper. The metric standard format most closely approximating the described standard 8 ½ x 11-inch size may also be used.

(h) Sections of the proposal which are page limited shall be prepared and submitted using non-compressed Times New Roman font with single-spaced 12 point text printed on both sides of the sheet with a one-inch margin on all sides in accordance with Microsoft Word default settings. Character spacing shall be "Normal" per Microsoft Word settings. Text in diagrams, charts, tables, artwork, and photographs shall be no smaller than Times New Roman 8 point text size. Diagrams, charts, tables, artwork and photographs shall not be used to circumvent the text size limitations of the proposal. The margins may contain headers and footers but shall not contain any proposal content to be evaluated.

All pages in each volume shall be numbered sequentially with Arabic numerals (1, 2, 3, etc.) for contents subject to page limitations. Each side of the sheet, tab, or divider containing proposal material will be counted as part of the appropriate volume's page limitations. Information that can be construed as belonging in another volume of the proposal will be so construed and counted against the appropriate volume's page limitation.

Title pages, table of contents, cross-reference matrices, glossaries, acronym lists, page tabs, and section dividers that do not contain information that can be construed as proposal information will not be counted as part of the page limitations. However, these pages shall be numbered with lower case Roman numerals (i, ii, iii, etc.) in order to provide ease of reference for the Government.

Foldout pages may only be used for large tables, charts, graphs, plans, figures, diagrams and schematics, not for pages of text. Foldouts shall be counted as two pages against the page limitations, shall be printed on one side only, shall be printed on 11 x 17-inch paper with a one-inch margin on all sides, and shall fold entirely within the volume.

Pages submitted in excess of the limitations specified in this provision will not be evaluated by the Government and will be returned to the Offeror in accordance with NFS 1815.204-70(b). Minor informalities or irregularities in a proposal that can be adjusted, corrected, or waived without being prejudicial to other Offerors may be accepted if it is immaterial to the acquisition. However, any pages contained in a page limited section of your proposal which do not comply with the RFP requirements may be returned by the Government and not evaluated.

(i) Sections of the proposal which are not page limited do not need to abide by the font, size or margin requirements of the page limited sections, though the Offeror should ensure readability. All pages in each section shall be numbered sequentially with Arabic numerals (1, 2, 3, etc.) Title pages, table of contents, cross-reference matrices, glossaries, acronym lists, etc. shall be numbered with lower case Roman numerals (i, ii, iii, etc.) in order to provide ease of reference for the Government.

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

(j) Each Offeror is required to submit its proposal in two formats, one conventional hard copy bound format in the quantities specified above, and one in an electronic format in the quantities specified above. The electronic submission is requested on a non-rewritable (CD-R) disk(s) and must be compatible with the software and hardware specification described below. Electronic media must be labeled or tagged with the RFP Number, Company Name, Date Prepared, version of Microsoft Office® application used, an indication of the files or range of files contained on the disks marked and in accordance with FAR 52.215-1(e), Restriction on Disclosure and Use of Data, and FAR 3.104-5, Disclosure, Protection, and Marking of Contractor Bid or Proposal Information and Source Selection Information.

Electronic copies of the proposal shall be prepared and submitted in Microsoft Office® applications (Word and Excel). Further, the Microsoft Excel spreadsheets shall be submitted in Microsoft Excel format, not in a scanned Microsoft Word or Adobe PDF file. Microsoft Word documents shall be submitted in Microsoft Word format, not in an Adobe PDF file.

To the extent of any inconsistency between data provided electronically and proposal hard copies, the electronic copy of the proposal will be considered to be the intended data to measure compliance with the page limitations specified in this provision. For electronic submissions, each volume of the proposal should be submitted as a separate electronic file. If a volume extends to multiple disks, the Offeror shall clearly indicate the sequence number. The Offeror shall not embed sound or video files into the proposal files. Minimize the use of scanned images and keep embedded graphics as simple as possible.

(k) A cover sheet should be contained as the first page of each book, clearly marked with volume number, title, solicitation identification, and the Offeror’s name. Be sure to apply all appropriate markings, including those prescribed in accordance with FAR 52.215-1(e), Restriction on Disclosure and Use of Data, and FAR 3.104-5, Disclosure, Protection, and Marking of Contractor Bid or Proposal Information and Source Selection Information.

(l) Provide a Cross Reference List that tracks the page and paragraph numbers of the Offer’s proposal to the page and paragraph numbers in the Government’s instructions. A Cross Reference List shall be submitted in each Volume for that particular volume.

(m) Offerors are highly encouraged to provide only the relevant information necessary to understand their proposal. Filling the page count with extraneous and/or repetitive information is highly discouraged.

(End of Provision)

L.22.3 Volume I – Mission Suitability

The proposal must demonstrate that the offered item(s)/service(s) meet the contract requirements. The Offeror shall provide the following in Volume I:

Sub-factor 1: Management Approach (MA)
Sub-factor 2: Technical Approach (TA)
Sub-factor 3: Small Business Utilization (SBU)

(End of Provision)

L.22.3.1 Management Approach (MA), Mission Suitability Sub-factor 1

The Offeror shall describe its approach to and rationale for meeting the contract requirements, as required on the MA1, MA2, MA3, MA4, and MA5 sub-factors below.

MA1. Overall Management Approach –

The Offeror shall submit the following DRDs:

1) Contract Management Plan (DRD HHPC-MGMT-01). Contract Work Breakdown Structure (WBS) and Dictionary (DRD HHPC-MGMT-02)
2) Information Technology (IT) Security Plan and Reports (DRD HHPC-IT-02)
3) Quality Plan (DRD HHPC-SMA-01).

MA2. Key Personnel Approach –

The Offeror shall discuss its approach and rationale for identifying, selecting, filling, and retaining Key Positions (including Key Positions of Teaming Partners and subcontractors). The Offeror shall address the Key Personnel positions listed/proposed in Clause H.9 Key Personnel and Facilities. The Offeror shall provide the basis for selecting the proposed Key Positions, and the basis for selection of the individuals and a summary of their qualifications to fill those positions. Describe the minimum qualification standards (training, certifications, type and length of experience, etc.) you will use to replace key personnel, if required, during the term of the contract. Provide this information for each key position. Describe how you will ensure key personnel will maintain the minimum qualification standards.

For the proposed key personnel listed in Clause H.9, provide their education (including licenses and certifications), current position, current significant responsibilities or projects, previous positions, and professional activities and achievements (including patents and significant publications), as indicated in Attachment L-8. Additionally, the Offeror shall provide evidence of commitment, for each individual proposed for a key position.

If Key Personnel are currently being proposed for other contracts, or for other reasons are not planned to be 100% dedicated to this Contract, describe the level of commitment proposed. Please discuss your rationale for how the work can be effectively performed with Key Personnel who are not fully committed to this Contract. Include in the discussion, scenarios that may lead to less than their full commitment to this Contract and any alternatives you propose. If the commitment of Key Personnel is contingent upon the outcome of another competition, alternate Key Personnel should be proposed along with evidence of commitment.

MA3. Staffing Approach –

The Offeror shall submit the DRDs listed below:

1) Total Compensation Plan (DRD HHPC-MGMT-07)

   The Total Compensation Plan must correspond with the data provided on the Total Compensation Templates (a), (b), (c), (d), and (e). These compensation templates will be evaluated as part of the Total Compensation Plan, in addition to Cost/Price.

2) Staffing and Critical Skills Plan (DRD HHPC-MGMT-04)

The staffing approach shall be consistent with the overall management approach and rationale.

MA4. Contract Phase-In Approach –

The Offeror shall submit the DRD listed below:

1) Contract Phase-In Plan (DRD HHPC-MGMT-05)

The contract phase-in approach shall be consistent with the overall management approach and rationale.

MA5. Safety and Health Approach –

The Offeror shall submit the DRDs listed below:

1) Safety and Health Plan (DRD HHPC-SMA-03)

(End of Provision)

L.22.3.2 Technical Approach (TA) Mission Suitability Sub-factor 2

The Offeror shall demonstrate their technical approach through their responses to the Scenarios and IDIQ Task/Delivery Orders as prescribed in TA1 and TA2 below.

In the Offeror's response, any potential technical innovations that would benefit the government following contract award should be captured in DRD HHPC-MGMT-09 "Technical Innovations Proposed Contract Language," to ensure such innovations may be utilized during contract administration.

TA.1 Scenarios:

The Offeror shall describe its approach and rationale to meet the technical requirements of the SOW, in response to Scenarios A through D, as listed in Table L-4. Scenarios A- D are hypothetical and represent unique events that could theoretically occur during the performance period.

The Offeror's approach and rationale in executing the requirements shall include a discussion on all needed functions, teams/functional responsibilities, interfaces, facilities, and processes applicable to the scenario, as well as a reference to the applicable SOW requirement. The Offeror's response

to this section shall be consistent with the proposed Management Approach. The Offeror shall describe the processes used to accurately identify, monitor, and control general technical risks that apply to multiple elements of the SOW. Further, the Offeror shall describe any cross-cutting technical systems and capabilities that may enhance the contractor's ability to meet multiple SOW elements. The Offeror shall also include a description of the human systems integration approach in its Technical Approach, which it will utilize to fulfill contract requirements..

The Offeror's response shall include a discussion of the necessary resources including labor and material assumptions to implement the proposed scenario. Also, include a discussion associated with any assumptions made regarding the requirements that led to the proposed resources such as: "we assume that a verification plan for the XYZ deliverables already exist and all we are responsible for is the maintenance of the plan." Include sufficient narrative discussion to convince the Government that the proposed resources are realistic for the proposed technical approach.

The Offeror should not address the diagnosis or treatment of any specific medical condition in their scenario response, but rather, focus the response on the applicable aspects of their Technical Approach. Scenario responses are for proposal evaluation purposes only, and shall not be priced or construed as actual Task/Delivery Orders. Specific pricing is not required and will not be evaluated.

Table L-4: Scenarios

Scenarios Number	Title	Reference Attachment
Scenario A	Consolidation and Relocation of Science and Research Laboratories	L-2
Scenario B	ISS On-Orbit Medical Event	L-2
Scenario C	Payload Processing Affects Ground Personnel	L-2
Scenario D	Occupational Surveillance Strategy for a Newly Identified Medical Condition	L-2

TA2. <u>IDIQ Task/Delivery Orders:</u>

The Offeror shall demonstrate their technical understanding of the requirements of each RFP IDIQ Task/Delivery Order listed in Table L-5; the specific labor resources needed to successfully perform these requirements, and explain any applicable cost savings. Since the paragraphs and tables described in these instructions are also intended to facilitate the technical evaluation of the Offeror's Cost/Price proposal, Offerors should carefully follow these instructions.

The Offeror's response to this section shall be consistent with the proposed Management Approach. Similarly, the Work Year Equivalent (WYEs) proposed in the Technical Resources Summary Template (TRST) must be in agreement with the resources proposed in the Volume III, Cost/Price.

A WYE is generally considered to be 2,080 hours per 12 month time period. However, a WYE may be slightly fewer than 2,080 hours per 12 month time period based upon an Offeror's unique accounting system. Offeror's shall identify the WYE assumptions utilized in pricing their cost proposals.

Productive hours are the WYE hours minus all non-productive time over a 12 month time period. Non-productive time includes such items as vacation and sick time, jury duty, maternity leave, or

other excused absences that are accounted for separately under an Offeror's specific accounting system. Offeror's shall identify the productive hours assumptions utilized in pricing their cost proposal.

The Offeror shall provide detailed responses to all of IDIQ Task/Delivery Orders listed in Table L-5. All Task/Delivery Orders shall be considered to be Cost/Completion form. The Government reserves the right to award the cost-reimbursable IDIQ Task/Delivery Orders at contract start, based on the Offeror's proposal price.

The Task/Delivery Orders are intended to evaluate the Offeror's technical understanding and cost realism of typical work content. Offerors are cautioned that this estimate is not a guarantee of future work. Offerors are directed to Clause B.7 IDIQ MINIMUM AND MAXIMUM ORDERING LIMITS, regarding the guaranteed minimum order for IDIQ. The Government intends to issue Task/Delivery Orders during the phase-in period to be in effect at contract start.

Table L-5: IDIQ Task/Delivery Orders

Task/Delivery Order Number	Title	Reference Attachment
TO-RFP-01	Contract Management and Administration	L-3-1
TO-RFP-02	Flight Sustaining, Resupply and Integration	L-3-2
TO-RFP-03	Information Architecture Infrastructure & Operations	L-3-3
TO-RFP-04	Biomedical Operations	L-3-4
TO-RFP-05	Environmental Sciences	L-3-5
TO-RFP-06	Spaceflight Clinical Operations	L-3-6
TO-RFP-07	ISS Medical Projects (ISSMP)	L-3-7
TO-RFP-08	JSC Clinic Operations	L-3-8

A. Technical Understanding of Requirements (Applicable to TO-RFP-01 through 08)

The Offeror shall provide a detailed narrative to the subtask level describing the technical approaches for providing products and services defined in each IDIQ Task/Delivery Orders in table L-5 and provide all assumptions and rationale used. Provide discussion to fully demonstrate understanding of the technical requirements for each Task/Delivery Order.

The Offeror's approach and rationale in executing the requirements shall include a discussion on all needed functions, facilities, including enabling and facility support requirements, teams/functional responsibilities, interfaces, and processes applicable to the Task/Delivery Orders, as well as a reference to the applicable SOW requirement. The Offeror's response to this section shall be consistent with the proposed Management Approach. The Offeror shall describe any cross-cutting technical systems and capabilities that would enhance the contractor's ability to meet multiple SOW elements. The Offeror shall also include a description of the human systems integration approach in its Technical Approach, which it will utilize to fulfill contract requirements.

The Offeror shall describe the processes used to accurately identify, monitor, and control technical risks associated with each specific IDIQ Task/Delivery Order. Identify those specific technical risks that the Offeror believes should be addressed relative to performance of work under all applicable sections of the SOW for that IDIQ Task/Delivery Order and discuss

mitigation strategies for each risk. Additionally, identify any significant technical trades the Offeror intends to conduct in developing its technical approach for each IDIQ Task/Delivery Order.

If, or where the IDIQ Task/Delivery Order or other sections of the contract instructs the Offeror to utilize specific products or services, the Offeror must identify those resources and how they will be incorporated into the work flow and managed; however, assume that those services are provided (i.e. Offerors don't have to estimate the cost of those services). The Offeror should not assume that any products or services are provided by the Government that is not specifically mentioned in the RFP.

For purposes of the RFP assume that JSC on-site in-line quality engineering and quality assurance will be provided by the Government or other Government support contractors unless the Task/Delivery Order specifically states otherwise.

B. Basis of Estimate (BOE) & Innovations (Applicable to TO-RFP-01 through 08) Innovations should be priced for CY 1, CY 2, and CY 3 of the Task/Delivery Orders.

a) Explain the BOE to the subtask level by providing supporting rationale for all labor resources (WYEs and skill mix) proposed for all IDIQ Task/Delivery Orders in table L-5, **prior to** proposed innovations. Include a discussion regarding how the proposed WYEs were estimated. Also, include a discussion associated with any assumptions made regarding the requirements that led to the proposed resources such as "we assume that a verification plan for the XYZ deliverables already exists and all we are responsible for is the maintenance of the plan." Include sufficient narrative discussion to convince the Government that the proposed resources are realistic for the proposed technical and management approach. This narrative shall be consistent with the Offeror's OCI Mitigation Plan, such that, for example, a proposed and relevant mitigation strategy is incorporated and included in the estimated resources. The BOE shall be consistent with the proposed resources in the "Resources Basis (Offeror's Staffing Level Prior To Implementation Of Innovations)" columns of the Technical Resources Summary Template in the IDIQ Workbook.

b) Uniquely describe any proposed innovations. Recommendations shall address how each proposed innovation will benefit and/or improve current processes. Propose an implementation plan and schedule for each proposed innovation. The Offeror shall propose specific contractually implementable language within DRD HHPC-MGMT-09 "Technical Innovations Proposed Contract Language" to ensure such innovations may be utilized during contract administration. The innovations shall be cited in the "Reference to comprehensive explanation of innovation in Volume I" columns of the Technical Resources Summary Template in the IDIQ Workbook.

c) Explain any modifications to the BOE in paragraph a), to the subtask level by providing supporting rationale for all labor resources (WYEs and skill mix) proposed for all IDIQ Task/Delivery Orders in table L-5, **including** any proposed innovations. The revised BOE, including innovations shall be consistent with the resources provided in the Technical Resources Templates, as well as the "Proposed WYEs w/ Innovations Included (Total Contract Year _ Column From TRT)" columns of the Technical Resources Summary Template.

d) BOEs shall demonstrate the net cost impact including both proposed investments and potential costs savings. These cost impacts shall be identified as a direct or indirect charge and shall

provide a clear and concise visibility regarding its approach in order to assist in the Government evaluation. If proposed innovations results in estimated cost savings, the Offeror shall provide the estimate of cost savings, the rationale, and the estimating techniques used to support the proposed cost savings.

e) Offerors are required to identify and estimate any non-labor resources by type in dollars for the IDIQ Task/Delivery Orders. A narrative BOE shall be provided that depicts the Offeror's demonstrated understanding of the required non-labor resources required to satisfy the RFP Task/Delivery Orders.

C. Resources (Applicable to TO-RFP-01 through 08)

The resources shall agree with the narrative discussion in paragraphs A and B above for all IDIQ Task/Delivery Orders in Table L-5. The resource details shall be contained in the Attachment L-7 IDIQ Cost Workbook, for that Task/Delivery Order, and shall reconcile with the cost proposal as indicated in the cost proposal instructions for the pricing model. Technical Understanding of Requirements or BOE & Innovations data shall be proposed in the proposal narrative as described above. If the Government determines this data, other than a reference to the proposal narrative, is included in the Technical Resources Summary Template (TRST) tab or other worksheet tabs in the IDIQ Cost Workbook, the data will not be evaluated and the applicable sections of the IDIQ Cost Workbook will be returned to the Offeror.

Offerors shall assume that 600 office seats distributed among the JSC facilities are available for the HHPC contractor.

Note: Since it is not subject to the page count for Volume I, the IDIQ Cost Workbook shall be submitted as part of Volume III, Cost/Price Proposal. The Technical Workbook shall reconcile to the resources used to develop the proposed cost and price in the Volume III.

Standard Labor Categories (SLC)

The Offeror shall develop its proposal using its estimating system. The Offeror shall map its labor categories to the SLCs using the guidelines provided in Attachment L-1. SLCs are intended to broadly group proposed labor into a manageable number of categories. These guidelines do not address all the possible specific skills, or requirements that any one occupation or profession may require. It is the Offeror's responsibility to acquire an understanding of the complexities of the work required to successfully meet the HHPC requirements. Accordingly, Offerors shall propose the resources required to successfully meet these requirements. Offerors are allowed to include additional labor categories that do not easily map into the SLC, however; the Offeror shall provide job descriptions similar to the guidelines provided in Attachment L-1.

Government Resource Estimate (GRE)

A Government Resource Estimate (GRE) has been developed for Contract Year 1 shown in four tables in Attachment L-4. The first table represents the GRE for the RFP Task/Delivery Orders and an estimate of non-labor resources (NLRs) including materials, travel, and other expenses. The second table represents an estimate of the overall staffing GRE for the RFP Task/Delivery Orders by standard labor category and also includes the NLRs. The third table represents an estimate of the overall staffing and NLR GRE for the entire statement of work broken down by standard labor category. The fourth table represents the difference between the GRE for the overall staffing level and NLRs for the entire SOW and the RFP Task/Delivery Orders, broken down by standard labor

category, and corresponds with the specified resources referenced in the pricing instructions and workbook.

The GRE is the Government's estimate of the direct labor resources (skill mix and full time equivalents) as well as non-labor resources that may be required to perform this effort, without incorporation of any one Offeror's specific management or technical approach. The GRE is based on historical usage factors and depicts an overall direct labor staffing and non-labor resource estimate for the entire scope of the Task/Delivery Orders that the RFP requires Offerors to address in their proposals. The GRE provided is not intended to influence the Offeror's proposed estimates; however, it is provided to assist Offerors in determining the general magnitude of this procurement. Offerors shall develop their own estimates consistent with their unique proposed management and technical approaches and shall provide adequate rationale to support their estimates.

The GRE is not to be considered a Government "plug number." The GRE Work Year Equivalent (WYE) estimates include all direct labor required to perform the entire SOW with the exception of traditional G&A type personnel such as: sales, human resources, finance, legal, procurement, or other corporate-level executives. In addition, the non-labor resources (NLR) GRE, does not include application of any indirect expenses such as material handling or G&A expenses, nor does it include fee.

Because of the uncertainties involved with IDIQ work, Offerors are cautioned that this estimate is not a guarantee of future work. Offerors are directed to clause B.7 IDIQ MINIMUM AND MAXIMUM ORDERING LIMITS regarding the guaranteed minimum order for IDIQ.

L.22.3.3 Small Business Utilization, Mission Suitability Sub-factor 3

All Offerors, except small businesses, must complete the portion of the instructions under Small Business Subcontracting specific to the Small Business Subcontracting Plan, (DRD HHPC-MGMT-11). Small businesses are not required to submit Small Business Subcontracting Plans.

All Offerors are required to respond to their Commitment to the Small Business Program.

SBU1. Small Business Subcontracting

1) Small Business Subcontracting Plan (DRD-HHPC-MGMT-11).

Required by the FAR:

i) This solicitation contains FAR clause 52.219-9, "Small Business Subcontracting Plan with Alternate II". The Plan described and required by the clause, including the associated subcontracting percentage goals and subcontracting dollars, shall be submitted with your proposal.

ii) The Contracting Officer's assessment of appropriate subcontracting goals for this acquisition, expressed as a percent of TOTAL CONTRACT VALUE (basic and all options combined), is as follows:

Small Businesses (SB)	30.0%
Small Disadvantaged Business Concerns (SDB) (Includes	5.0%

SDB's in represented and under-represented areas*)	
Women Owned Small Business Concerns (WOSB)	7.0%
HUBZone Small Business Concerns (HBZ)	3.0%
Veteran Owned Small Business Concerns (VOSB)	5.0%
Service-Disabled Veteran-Owned Small Business Concerns (SDVOSB)	3.0%
Minority Serving Institutions (MSI)	1.0%
*Although 15 U.S.C. 637(d) requires subcontracting plans to contain information about SDB concerns, case law prevents the Government from giving evaluation credit to business types based on race or ethnicity unless those businesses are in under- represented industries. The Section M evaluation for SDB participation ensures that the Government only evaluates participation of SDBs in industries that are designated by the Department of Commerce as underrepresented. For purposes of the Small Business Subcontracting Plan, the proposed subcontracting goal for SDBs will be evaluated based upon the SDB's status as a small business.	

iii) The numbers above reflect the Contracting Officer's assessment of the appropriate subcontracting goals to be achieved at the completion of contract performance. If it is anticipated that the proposed small business goals will not be met by the submission of the first Individual Subcontracting Report (ISR) for this effort as required by 52.219-9 Small Business Subcontracting Plan, the Offeror should discuss their approach to include timeline for meeting these goals and the rationale for it.

iv) Offerors are encouraged to propose goals that are equivalent to or greater than those recommended by the Contracting Officer. However, Offerors must perform an independent assessment of the small business subcontracting opportunities.

v) The Plan submitted with the proposal shall be incorporated in Section J as Attachment J-7 in the resulting contract. The requirements in the Plan must flow down to first tier large business subcontracts expected to exceed $650,000 or $1,500,000 for construction of a public facility. Although these first tier large business subcontractors are encouraged to meet or exceed the stated goals, it is recognized that the subcontracting opportunities available to these subcontractors may differ from those suggested in the solicitation based upon the nature of their respective performance requirements.

vi) Offerors are advised that a proposal will not be rejected solely because the submitted Plan does not meet the NASA recommended goals that are expressed in paragraph (1) (ii) above in terms of percent of TOTAL CONTRACT VALUE (basic and all options combined). NASA will consider the amount of work being retained for performance by the prime contractor in-house when determining whether a subcontracting plan is acceptable. Offerors shall discuss the rationale for any goal proposed that is less than the Contracting Officer's recommended goal in any category. In addition, the Offeror shall describe the efforts made to establish a goal for that category and what ongoing efforts, if any, the Offeror plans during performance to increase participation in that category.

vii) In addition to submitting a Small Business Subcontracting Plan in accordance with

Section I, FAR clause 52.219-9, Alternate II, Offerors shall complete Attachment L-5, SMALL BUSINESS SUBCONTRACTING TABLES, which provides a breakdown of the Offeror's proposed goals, by small business category, expressed in terms of both a percent of TOTAL CONTRACT VALUE and a percent of TOTAL PLANNED SUBCONTRACTS. Offerors shall modify the exhibit to show the proposed subcontracting goals for the basic contract requirement and each option separately.

Example of Subcontracting Goals, expressed in both contract value and subcontract value, for a contract proposed at $100M with estimated subcontracts of $50M:

Table L-6: Small Business Subcontracting Plan Goals

	Column A	***Column B***	***Column C***
Business Category	**Goal as Percent of Contract Value**	**Total Dollar Value to be subcontracted per Category**	**Goal as Percent of Subcontracting Value**
Small Business Concerns	25 percent	$25,000,000	50 percent
Large Business Concerns	n/a	$25,000,000	50 percent
Total Dollars to be Subcontracted	n/a	$50,000,000	100 percent
The following small business subcategories do not necessarily add up to the percentage and dollar amount in the "Small Business Concerns" category above, since some small businesses do not fall into any of the subcategories below, while others will fall into more than one subcategory below.			
Subcategories of Small Business Concerns			
Women Owned Small Business Concerns	9 percent	$9,000,000	18 percent
Small Disadvantaged Business Concerns	5.0 percent	$5,000,000	10 percent
Veteran Owned Small Business Concerns	2.5 percent	$2,500,000	5 percent
Service-Disabled Veteran-Owned Small Business Concerns	1.5 percent	$1,500,000	3 percent
HUBZone Small Business Concerns	1.5 percent	$1,500,000	3 percent
Minority Serving Institutions	1.5 percent	$1,500,000	3 percent

It is recommended that Offerors first complete Column B by entering the dollar amount the Offeror proposes to subcontract to each business category and subcategory.

To complete Column a, divide the dollar amount in Column B by the **total offered price of the proposal** (that is, total contract value). In the example above, Column A for Veteran Owned Business Concerns = $2,500,000 divided by $100,000,000, or 2.5 percent.

To complete column C, divide the corresponding amount in Column B by the amount in the "Total Dollars to be Subcontracted" cell in Column B. In the example above, Column C for

Women-Owned Small Businesses = $9,000,000 divided by $50,000,000, or 18 percent.

Note: the "Total Dollars to be Subcontracted" amount in Column B will always be that category divided by itself (100 percent if any dollars are subcontracted).

SBU2. <u>Commitment to the Small Business Program</u>

(a) All Offerors shall briefly describe work that will be performed by small businesses. Proposals should also identify any work to be subcontracted that is considered "high technology." High Technology is defined as research and development efforts that are within or advance the state-of-the-art in technology discipline and are performed primarily by engineers, scientists, and highly skilled and trained technicians or specialists.

(b) If the subcontractor(s) is known, Offerors must connect the work to the subcontractor and specify the extent of commitment to use the subcontractor (s) (enforceable vs. non-enforceable commitments). (Small Business Offerors shall provide this information to the extent subcontracting opportunities exist in their approach to performing the requirement.)

(c) All Offerors shall provide information demonstrating the extent of commitment to utilize small business concerns and to support their development. Information provided should include a brief description of established or planned procedures and organizational structure for Small Business outreach, assistance, participation in the Mentor Protégé program, counseling, market research and Small Business identification, and relevant purchasing procedures. For other than small business Offerors, this information should conform to applicable portions of the submitted Small Business Subcontracting Plan. Small Business Offerors shall provide this information to the extent subcontracting opportunities exist in their approach to performing the requirement.)

(End of Provision)

L.22.4 <u>VOLUME II – PAST PERFORMANCE</u>

(a) Provide information from organizations and companies for which your company has previously performed work, in order for the Government to obtain appraisals of past performance. Offerors, including joint ventures, major subcontractors (subcontracts with an estimated annual value greater than $5M) shall each provide information on up to five past contracts (subject to the page limitation constraints). References with Government contracts are preferred, but not required.

(b) Offerors shall consider the recency and relevancy, as they relate specifically to this requirement. Only contract period of performances within five years from the date of the HHPC solicitation will be considered in the past performance evaluation. Within this 5 year period, more recent performance will receive greater consideration in the performance confidence assessment than those with more distant performance, assuming all other considerations to be equal. Offerors with no past performance experience shall so state.

(c) The following information shall be provided:
Contract number, Cage Code, and Duns Number
Contract value (If other than the prime, provide the overall contract value and the subcontract contract value)
Employing Agency/Company Name

Point of Contact (including address, telephone and fax numbers, and e-mail addresses)
If a Government Agency, include both the Contracting Officer and Contracting Officer's Technical Representative points of contact
Contract Description
Place of Performance
Period of Performance
Contract Type
Status of Contract (current, terminated (if so, why), successfully completed (include completion date))
Consent Letters executed by each subcontractor, teaming partner, proposed program manager and/or joint venture partner, authorizing the release of past performance information so the Offeror can respond to such information. See sample consent letter at Attachment L-9.

Submit information on contracts that you consider relevant in demonstrating your ability to perform the proposed effort. The submission shall include rationale supporting your assertion of relevancy. This submission shall clearly detail what portions of the Statement of Work, the prime, joint venture, major subcontractors are responsible for and/or proposing to do. For a description of the characteristics or aspects the Government will consider in determining relevance, see Section M, Provision M.6, Past Performance Factor. If the Past Performance volume includes data on any parent or affiliated company, division(s), business units, segments, or other organizations of your company, then provide a narrative to address what they will be responsible for and/or proposing to do and the specific resources (workforce, management, facilities, or other resources) to be employed and relied upon, such that said parent et al will have meaningful involvement in contract performance.

Provide an organizational chart displaying the relationships between the parent company or affiliate, and any other organizational entity (parent or affiliated company, division(s), business units, or segments of your company) which are proposed to perform the effort. Complete Attachment L-10 "Past Performance Information Matrix" as part of your response. In the event of a conflict between the narrative and the relevancy matrix, the narrative will take precedence as the Offeror's intended response.

In addition to the information above, Offerors, any major subcontractors, as defined above, and any other organizational entity (parent or affiliated company, division(s), business units, or segments of your company, which is considered to provide meaningful involvement in contract performance, shall each submit the Past Performance Questionnaire, Attachment L-6, to all of the point of contact references required in paragraph 3 above. The Offeror is responsible for ensuring that all references are directed to return two copies of each questionnaire directly to the Contracting Officer in a sealed envelope, by fax, or e-mail to the contact identified in provision L.16 52.215-109 PROPOSAL MARKING AND DELIVERY (AUG 2012) (JSC PROCUREMENT INSTRUCTION).

Where an Offeror chooses to request, from a civil servant employee at JSC, that a past performance questionnaire be submitted on its behalf for its proposed key personnel, please be advised that a Limited Communications Notice (LCN) has been issued in conjunction with this solicitation. The LCN directs that all civil service personnel at JSC shall refrain from communicating with industry on any matters related to this competitive procurement; as a result, while the civil servants may respond to the past performance questionnaire they will be unable to provide status to the Offeror, or communication in any other fashion with the Offeror, about that past performance request.

(d) You may include up to one page of introductory material about the experience and performance of your company and subcontractors (if applicable). You may submit additional reference information on experience and past performance for consideration. This additional information shall be subject to the page limitation constraints.

(e) Offerors shall provide the following performance data with explanatory remarks on recent and relevant contracts (as defined in L.22.4 (a) & (b)). Offerors shall identify the applicable North American Industrial Classification System (NAICS) Code for each contract and shall include points of contact for each contract. If a joint venture or prime-subcontractor relationship is proposed, the same information shall be provided for each major subcontractor proposed (as defined in L.22.4 (a)). Explanatory statements shall be included as appropriate. Offerors shall provide the following:"

Environmental Data:

Copies of any and all environmental non-compliance correspondence and citations from federal, state, or local agencies or authorities with explanatory remarks.

Safety Data:

Copies of any and all OSHA citations with explanatory remarks. Records of the company's OSHA recordable injuries and illnesses. These records shall include, for each worksite, as a minimum, 1 copy of each year's OSHA logs (Forms 300 and 300A) as required by Title 29 of the Code of Federal Regulations, Section 1904.5(d) including the applicable NAICS code, the number of employees at the worksite and the calculated OSHA recordable frequency rate.

A list of all insurance carriers providing workers compensation coverage (or equivalent), including dates of coverage. Include points of contact and phone numbers. Offerors shall authorize the listed insurance carriers to respond to Government inquiries recording the Offeror's past safety performance.

Calculations supporting the Offeror's workers' compensation experience modifier, including the state formula used for the computation, along with the loss ratio for each of the past five years (where the loss ratio is defined as the ratio of losses to premium). Show all figures used for computation.

A letter from the insurance carrier summarizing the Offeror's liability and lawsuit history related to safety and health performance for the past five years including a history of changes to the experience modifier rate. If an Offeror self-insures, provide and certify the same information (except the experience modifier rate history) with the signature of the responsible corporate officer or official.

(f) The prime Offeror shall provide a statement of small business participation (goals, record, and type of work subcontracted) over the last five years on work that is relevant to this effort, with special emphasis on the division of the company which will perform the proposed contract.

(End of Provision)

L.22.5 VOLUME III – COST/PRICE

Instructions for the preparation of the Cost/Price Proposal are organized as shown in the following Table and are presented below.

(a) Introduction

Certified cost and pricing data is not required; however, data other than certified cost and pricing data is required. The Offeror's cost proposal shall be compliant with, and based upon, the Offerors estimating, accounting, and other applicable business systems. To ensure that the Government is able to perform a fair assessment of the proposed cost, each Offeror is required to submit a cost proposal that is suitable for evaluation. A cost proposal that is suitable for evaluation shall:

- Account for all resources necessary to complete requirements of this RFP.
- Provide traceability to the technical/management proposal(s).
- Explain in detail all pricing and estimating techniques.
- Disclose the basis of all projections, rates, ratios, percentages, and factors in sufficient detail to facilitate the SEB's understanding and ability to mathematically verify these estimating tools.
- Comply with applicable Federal Acquisition Regulation (FAR), NASA FAR Supplement (NFS), and governing statutory requirements.
- Include a narrative portion that explains all judgmental elements of cost projections and fee policies including any proposed cost ceilings and team fee sharing arrangements.
- Include all templates required in this RFP.

The Offeror's cost proposal shall be submitted in one volume labeled Volume III Cost/Price Proposal.

(b) Specific Guidelines

The cost instructions apply to the prime Offeror and all major subcontractors with a total estimated value that equals or exceeds $5M annually, over the period of performance for this contract defined in Section L.22.1.1, PERIOD COVERED BY PROCUREMENT.

1) <u>Direct Labor Rates</u>
For any direct labor rates not included in a Forward Pricing Rate Agreement (FRPA), the Offeror shall provide rationale and the Basis Of Estimate for the direct labor rates provided. For informational purposes only, the Government intends to provide average composite direct labor rates under the Bioastronautics contract. The provision of historical data should not be construed as the Government's requirements or preferences regarding direct labor rates for contractor employees. This data will be made available in the technical library.

2) <u>Direct Labor Escalation</u>
For any direct labor rates not included in a Forward Pricing Rate Agreement, the Offeror shall provide the company's direct labor escalation history for the past five years. The Offeror shall indicate the reason(s) for the historical escalation history. Further, the Offeror shall specifically provide, and explain, the rationale for any proposed direct labor rate of escalation going forward, whether positive, zero, or negative. Finally, if the historical rate of escalation is different than the proposed rate

of escalation going forward, then provide and explain the reason(s) why.

3) Indirect Rate Historical Data and Analysis
For any indirect rate(s) not included in a FPRA, the Offeror shall provide the company's indirect rate history for the past five (5) years. The Offeror shall indicate the primary reason(s) for any significant change in the indirect rate from year to year. Further, the Offeror shall specifically provide, and explain, the rationale for any elements of cost in either the "pool" or the "base" that are driving significant changes in the indirect rate(s) going forward or that have resulted in significant changes to the indirect rate(s) versus the historical indirect rate data.

4) Uncompensated Overtime
The Government does not require the use of uncompensated overtime; however, if proposed, include a detailed narrative basis of estimate explaining your proposed methodology and provide your historical experience for similar work.

5) Standard Labor Categories
Standard Labor Categories (SLCs) to facilitate a consistent evaluation among Offerors are provided in Attachment L-1. Offerors shall map their labor categories to the SLCs. Offerors shall provide a brief narrative description of their labor categories and how they map to the SLCs to permit for a Government review based on the Offeror's estimating system.

6) Work Year Equivalent (WYE) and Productive Hours
A WYE is generally considered to be 2,080 hours per 12 month time period. However, a WYE may be slightly fewer than 2,080 hours per 12 month time period based upon an Offeror's unique accounting system. Offeror's shall identify the WYE assumptions utilized in pricing their cost proposals.

Productive hours are the WYE hours minus all non-productive time over a 12 month time period. Non-productive time includes such items as vacation and sick time, jury duty, maternity leave, or other excused absences that are accounted for separately under an Offeror's specific accounting system. Offeror's shall identify the productive hours assumptions utilized in pricing their cost proposal.

7) Model Contract Rates versus Cost Proposal Rates
The Fully Burdened Rates (FBR) used in the development of the Offeror's cost proposal shall match exactly with the FBR rates proposed in Section B of the Model Contract. If the cost proposal FBRs do not match Section B rates FBRs, Section B FBRs shall prevail.

(c) Pricing Methodology

Note: This solicitation contains technical scenarios, IDIQ Task/Delivery Orders, and RFP Specified Resources. Offerors shall not price the technical scenarios; however technical scenarios will be evaluated for technical understanding as indicated in Section M.

Offerors shall price the IDIQ Task/Delivery Orders and the RFP Specified Resources. Both the IDIQ Task/Delivery Orders and the RFP Specified Resources, when combined, shall be the total price proposed by the Offeror for proposal evaluation purposes. Assume that all work shall be performed at the Johnson Space Center, unless specified otherwise in

theTask/Delivery orders.

The IDIQ Task/Delivery Order pricing templates are structured to allow offerors to propose resources including innovations for CY 1, CY 2, and CY 3. Thereafter, only Task/Delivery Order labor resources shall be straight lined. All other resources including indirect rates, labor escalation and NLR escalation for all contract years (CY 1 through CY 10) shall be discretely bid by offerors.

For purposes of this solicitation, Offerors shall provide their estimate of the required level of resources necessary to perform the SOW as discussed for the IDIQ Task/Delivery Orders.

The Government Resources Estimate for Specified Resources is already provided in Attachment L-4.

1) Pricing for IDIQ Task/Delivery Orders

   Offerors are required to provide their estimate of the level of resources necessary to perform the Task/Delivery Orders (TO) provided in Section L, Attachment L-3 of the RFP. Offerors are required to propose the required level WYEs (Work Year Equivalent) and appropriate skill mix per their unique technical approach necessary to perform the TO. A Government Resource Estimate (GRE) is provided in Attachment L-4. The GRE is based on historical usage factors which may not be representative of 100% of usage for future work. It also depicts the Government's estimated requirements for work required by the TO. The GRE is provided for Offerors to scope and develop their management and technical approach and rationale and for development of indirect rates. The GRE provided is not intended to influence the Offeror's proposal estimates; however, it is provided to assist Offerors in determining the general overall scope to support development of indirect rates and for development of their management and technical approaches. Offerors shall develop their own estimates that support their unique proposal management and technical approaches and shall provide supporting rationale in narrative form.

   Because of the uncertainties involved with IDIQ work, Offerors are cautioned that this estimate is not a guarantee of future work. Offerors are directed to Section B.7 regarding the guaranteed minimum order for IDIQ.

   Offerors are required to develop a contractor team composite Fully Burdened Rate (FBR) per contract year, per SLC, and apply these rates to the hours proposed on the TO. The Government will allocate the hours proposed on the TO to all contract years and the Offerors will apply their contractor team FBRs to those hours to derive estimated Task Order cost. This pricing approach is facilitated through the Government provided cost templates in the Excel Pricing Model (EPM), which is explained in detail in Paragraph (d) below.

   For proposal pricing and evaluation purposes, Offerors shall assume that all work is performed at Johnson Space Center unless specified otherwise in the Task/Delivery Orders. The Offeror shall propose any required Non-Labor Resources (NLRs).

2) Pricing for IDIQ RFP Specified Resources

Offerors are required to develop a contractor team composite FBR per contract year, per SLC, and then apply those rates to the respective hours provided in ISCT – SR Template of the IDIQ Workbook. The Offeror shall also utilize the NLRs provided in the ISCT – SR. This pricing approach is facilitated through the Government provided cost templates in the Excel Pricing Model, which is explained in detail in Paragraph (d) below.

Because of the uncertainties involved with IDIQ work, Offerors are cautioned that this estimate is not a guarantee of future work. Offerors are directed to Section B.7 regarding the guaranteed minimum order for IDIQ.

(d) **Excel Pricing Model (EPM):**

1. Workbook File

(a) Format

The EPM includes one workbook/file. The workbook/file must be automated to the greatest extent possible. The workbook/file shall be named "IDIQ-Company Name.xls" and include the following templates: Technical Resource Template TO RFP 1 – 8 (TRT – TO RFP 1 through 8), Technical Resource Summary Template (TRST), Fully Burdened Rates Template (FBR), Minor Subcontract Pricing Template (MST), Task Order Pricing Template (TOPT), IDIQ Summary Cost Template – Task Order x (ISCT-TO), IDIQ Summary Cost Template – Specified Hours and Non-Labor Resources (ISCT- SR), Overhead Template (OHT), G&A Template (GAT), Total Compensation Templates TC(a through e), Cognizant Audit Office Template (CAOT), and Phase in Template (PIT).

The goal of the EPM automated workbook is to provide a comprehensive working model of the Offeror's proposed cost volume in an automated format. The pricing model will be designed to facilitate changes to source data such as direct labor hours and/or rates, overhead and G&A rates etc. and be sophisticated enough to compute the total impact of various changes to both cost and price. It is important that your model facilitate this process to ensure fidelity and is error free. For example; the model must be able to compute the cost and price impact of:

1) Increasing (or decreasing) the number of Engineer I full time equivalent staff (WYEs)
2) Increasing (or decreasing) the overhead rate(s).

(b) Formulas

All formulas used in the workbook must be clearly visible in the individual cells and verifiable. Whereas linking among the spreadsheets within the workbook may be necessary; the use of external links (source data not provided to NASA) of any kind is prohibited. The workbook must contain no macros or hidden cells.

(c) Locks

The EPM and all its associated workbooks shall not be locked/protected or secured by passwords.

2. CD Cost Proposal Organization

The Government intends to use a personal computer with Microsoft Excel to aid in the evaluation of the cost proposal. In addition to the hardcopy requirements of the preceding section, each prime and major subcontractor is required to submit their EPM and any other electronic cost data, including formulas, on CD only. Each CD provided is to have an external label indicating:

1) The name of the Offeror,
2) The RFP number, and
3) The files/workbooks or range of files/workbooks contained on the CD.

Both the case and the CD itself must be labeled. The use of a permanent marker to label the CDs by hand is acceptable.

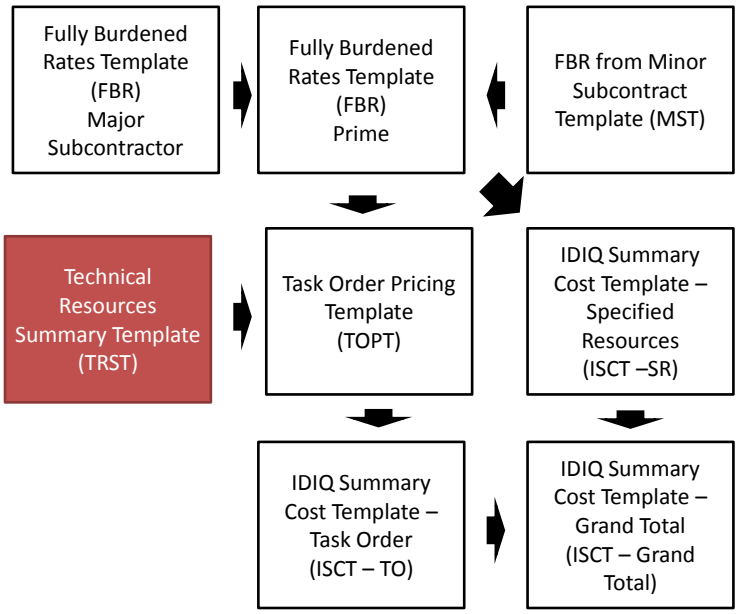
When multiple versions of the same template are required, then submit the multiple templates inside one worksheet stacked vertically. For example, if the Fully Burdened Rates Template (FBR) is required for each year of a ten year contract then ten vertically stacked templates will be submitted under a tab titled FBR under workbook IDIQ-Company Name.xls

All electronic file/workbook names included in the Offeror's proposal shall begin with the appropriate workbook acronym, hyphen, followed by the first three letters of the Offeror's company name. For example: Assume the Offeror's company name is ABC Company and the Offeror have completed the IDIQ workbook; the workbook/file name would be IDIQ-ABC.xls. Offerors shall use the Template acronyms below in naming individual worksheets/tabs within an Excel file/workbook:

IDIQ Workbook Acronyms:
TRT TO - RFP-01 through 08 – Technical Resources Template
TRST – Technical Resources Summary Template
FBR – Fully Burdened Rates Template
MST – Minor Subcontractor Pricing Template
TOPT –Task Order Pricing Template
ISCT – TO – IDIQ Summary Cost Template – Task Order
ISCT – SR – IDIQ Summary Cost Template – Specified Resources
OHT - Overhead Template
GAT - General & Administrative Expense Template
TC (a) – Compensation Template (a): Salaries & Wages – Non-Exempt
TC (b) – Compensation Template (b): Salaries & Wages –Exempt
TC (c) – Compensation Template (c): Fringe Benefit Analysis of Compensation Plan
TC (d) – Compensation Template (d): Personnel and Fringe Benefits Policies
TC (e) – Compensation Template (e): Incumbency Assumptions
CAOT - Cognizant Audit Office Template
PIT – Phase in Template

The cost proposal templates are designed to provide NASA with information necessary to perform a cost realism analysis. The specific templates required can be found in Attachment L-7.

IDIO PRICING FLOWCHART



TECHNICAL TEMPLATE INSTRUCTIONS

Hard copies of the Technical Resources Templates are to be included as an appendix and shall be attached to the end of Volume I, Mission Suitability, TA2, IDIQ Task/Delivery Orders. These templates may be printed on any reasonable size paper and are not included in the page count limitation for Volume I. In addition, electronic versions of these templates shall be submitted in Microsoft Excel format. These electronic versions are to be included in your Electronic Pricing Model (EPM). The EPM requirements are further defined in the cost/price instructions below.

(a) **The Technical Resources Templates (TRT TO -01 through 08)** are required to summarize and sort by task, all proposed labor resources by TO and shall be inclusive of any proposed innovation(s), if applicable. The resources proposed in the TRT shall be used to populate the TRST columns entitled (Proposed WYEs w/ Innovations Included (Total Contract Year _ Column From TRT)." This corresponds with BOE narrative response to Section L22.3.2 TA2 B. c).

This template requires labor resources identification in WYEs by SLC. The TRTs include yellow color coded columns that correspond to the subtask order detail located in the Attachment L-3 "IDIQ Task/Delivery Orders" for TO 1 - TO 8. The yellow color corresponds with the requirement for the Offeror to provide applicable resources within that column for each subtask. For example: anywhere a yellow column exists in any area of the TRT, the Offeror shall populate that area of the template with applicable labor resources inclusive of any proposed innovation(s) if applicable.

The total WYEs proposed for TO1- TO 8 for CY 1, CY 2, and CY 3 on the respective TRT tabs must reconcile to the total proposed WYEs on the TRST for the same Task/Delivery Orders for CY1, CY 2, and CY 3 under the column entitled "Proposed WYEs w/ Innovations Included

(Total Contract Year _ Column From TRT)."

(b) **The Technical Resources Summary Template (TRST)** is required to summarize all proposed labor resources for each Task/Delivery Order (TO 1-8) for CY 1, CY 2, and CY 3 only. The TRST is an automated template which serves four functions:

1) In the column entitled "Incumbent Retention %", Offerors are required to provide the percent of incumbent workforce they intend to retain by SLC.

2) Columns entitled "Resources Basis (Offeror's Staffing Level Prior To Implementation Of Innovations)" shall be populated by the Offeror's assumed staffing level **prior** to implementation of any innovations that result from the application of the Offeror's technical and management approach. The offeror shall provide rationale, detailed narrative, and validation of their resource basis in Volume I. The Resources Basis shall be detailed to provide insight and allow Government analysis of the proposed resources Basis before implementation of innovations. This corresponds with the BOE narrative response to Section L22.3.2 TA2 B. a).

3) If innovations are proposed, in the column entitled "Proposed WYEs w/ Innovations Included (Total Contract Year _ Column From TRT)," the Offeror shall include all proposed labor resources after implementation of innovations resulting from its technical and management approach to satisfying the Task/Delivery Order requirements. These resources shall reflect the proposed resources from the TRT. The Offeror shall provide a detailed narrative, rationale, and validation of resources in sufficient detail to allow the government to either accept or reject a particular proposed innovation on an individual basis. Further, the innovation shall not be comingled to a degree that would not permit an evaluation on reasonableness per innovation. Each proposed innovation shall be identified by resource(s) impacted (i.e. by SLC and/or NLR). This corresponds with the BOE narrative response to Section L22.3.2 TA2 B. c).

   If no innovations are proposed, the number of WYEs proposed in the "Resources Basis (Offeror's Staffing Level Prior To Implementation Of Innovations)" column should be copied over to the "Proposed WYEs w/ Innovations Included (Total Contract Year _ Column From TRT)" column.

4) The column "Delta from Resources Basis" shall calculate the deltas between the proposed Resource Basis column and the Proposed WYE's with Innovations column.

5) The "Reference to Comprehensive Explaination of Innovation in Volume I" column provided must be used by the Offerors to refer the NASA evaluators to the specific Volume I "BOE & Innovations" paragraph (Section L22.3.2 TA2 B. b)), which provides the analysis of the innovation resulting in the resource delta. Additionally, any proposed innovations shall include specific contractually implementable language DRD HHPC-MGMT-09 "Technical Innovations Proposed Contract Language."

   The NASA evaluators will compare all "BOE & Innovations" paragraphs to proposed resources for equivalence and to ensure all parts of the proposal reconcile. Offerors are reminded of paragraph 3 of this section with regard to the comprehensive detail with respect to proposed innovations allowing government insight of each innovation.

6) At the bottom of the template, Offerors are required to fill in their proposed Non-Labor Resources (NLR) costs for each Task/Delivery Order for CY 1, CY 2, and CY 3. This corresponds with the BOE narrative response to Section L22.3.2 TA2 B. d).

The TRST functions as a link between the Technical Volume and the Cost Volume, therefore, also include this template in Volume III, Cost/Price Proposal.

The instructions for required completed IDIQ cost templates apply to the prime Offeror and all major subcontractors (subcontractors with a total estimated value that equals or exceeds $5M annually over the period of performance for this contract defined in Section L.22.1.1, PERIOD COVERED BY PROCUREMENT). Subcontractors with a total estimated value below $5M annually over the period of performance covered by the procurement are considered minor subcontractors.

COST TEMPLATE INSTRUCTIONS

(a) Fully Burdened Rates Template (FBR)

A separate FBR is required for each contract year of the effort from both the prime Offeror and each major subcontractor(s). This template is provided so that each Offeror may show how they arrived at their individually proposed fully burdened rates including profit/fee.

<u>As noted towards the top of this template, the columns below the blue area shall be completed by the prime contractor; likewise, the columns below the yellow area shall be completed by the major subcontractor.</u>

The first two columns address the Offeror's direct labor categories and the NASA Standard Labor Categories (SLCs).

The Incumbent Retention % Column allows the Offeror to propose the percentage retention of the existing workforce per SLC. The Offeror may propose any percentage per labor category that is based upon their proposed management and technical approach required for the statement of work. In the example, 100% is placed against a Business Specialist 3 for illustrative purposes.

In the column entitled "% Incumbents at Current DL Rates", Offerors are required to identify the percentage of incumbent workforce that they intend to pay at their current incumbent direct labor rates by SLC.

The Percentage Usage Column is provided so that the Offeror may weigh the proposed direct labor per the Offeror's labor categories. The usage percentage must total to 100% for each SLC. The Percentage Incumbents at Current Rates column is provided for the offer to indicate what percentage of the proposed retained personnel will be paid at the current rates. In addition the Direct Labor Rate column is provided so that the Offeror may provide the average direct labor cost for each SLC while simultaneously mapping the Offeror's job categories into the SLC's. In the example, it is assumed that for the SLC "Business Specialist 3," the Offeror has two Offeror specific categories that map into this category. The two categories are "XYZ

Rate 1" at $28.75/hr. and "XYZ Rate 2" at $25.25/hr. The Offeror (prime or subcontractor) also assumes that its specific labor category will be utilized 75% and 25%, respectively. Hence, the rates that should show up as the composite SLC rate for this specific category is derived as follows: ($28.75/hr. * 75%) + ($25.25/hr. * 25%) = $27.88. Note that this is simply an example and it may not capture all possibilities.

The Overhead Rate column addresses the overhead rate(s). The Overhead Cost column is the overhead cost per hour of labor. In the example, it is assumed that the Offeror's overhead rate is applied solely to direct labor cost. However, it may be modified to accommodate the Offeror's specific accounting system. You may add rows or columns to facilitate this. However, do not remove any SLC's in your submitted templates. The overhead rate(s) provided on this template should tie directly to the overhead rate(s) provided on the overhead rate template (OHT) discussed below.

The General and Administration (G&A) Rate column addresses the G&A rate. The G&A Cost column is the G&A cost per hour of labor. In the example, it is assumed that the G&A rate is applied to both direct labor and overhead cost. However, it may be modified to accommodate the Offeror's specific accounting system. The G&A rate provided on this template should tie directly to the G&A rate provided on the G&A rate template (GAT) discussed below.

The facilities capital cost of money column is provided should the Offeror both have this cost element and propose it as an allowable cost.

The fee column on this template is applicable to the major subcontractors only, if the major subcontractor is not sharing in a fee pool, and is proposing their own separate fee structure.

The FBR column basically combines the direct labor hourly rate and all the indirect costs, along with the subcontractor fee if applicable, to arrive at the prime Offeror's or major subcontractors fully burdened labor rate per SLC.

Note: Major subcontractor(s) must complete the information on this template except at the subcontractor price input area and to the right of the subcontractor price input area. The subcontract price input area is only applicable to the prime Offeror who must provide the integrated subcontractor FBR as part of the blended FBR of the prime and subcontractor.

The Subcontractor Price Input Area addresses the subcontractor fully burdened rates. This area shall be completed by the prime Offeror. In the Subcontractor FBR column(s), the subcontractor(s) shall provide to the prime Offeror their fully burdened labor rate(s) and shall be one composite rate per SLC per subcontractor. The major subcontractor FBR is determined by the major subcontractor completing the FBR template and determining the FBR that shall be charged to the prime Offeror. The minor subcontractor FBR is determined by the minor subcontractor and provided to the prime Offeror. The prime Offeror will document the minor subcontractor's FBR on the Minor Subcontractor Pricing Template (MST) discussed below. If more than one subcontractor (major or minor) is being proposed, then the prime Offeror is responsible for providing each subcontractor's fully burdened rate in each column. In the template, three columns are provided and identified as Subcontractor "A", "B" and "C". More columns may be added as necessary. In this example, subcontractor "A" and subcontractor "B" are provided for illustrative purposes.

The Prime Burdens Rate column is the rate that the prime Offeror may apply as a burden to the

major or minor subcontractor FBR, if applicable. The Prime Offeror then combines the Subcontractor FBR with the Prime Burdens Rate to arrive at a total rate that addresses the use of the particular subcontractor.

The Percentage Usage Prime/Sub columns address the weighting of the Prime FBR versus the Subcontractor FBR. Based upon this weighting, a Team Composite (Prime and Subcontractor) FBR can be determined. In the example, for Business Specialist 3, it is assumed that the prime Offeror has determined that the prime will perform 80% of the effort under this SLC, and that Subcontractor "A" and Subcontractor "B" will perform 12% and 8% of the effort under this SLC, respectively. The weighting results in a Team Composite FBR of $55.00 per hour.

The Team Composite (prime Offeror and all subcontractors) FBR per Hour column address the final composite FBR that the prime Offeror has calculated. **Important Note: The FBR identified in this column shall be the FBRs that are included in Section B of the Model Contract.**

Note: The Not-To-Exceed (NTE) fee rate applicable to the Team Composite FBRs shall be addressed at the IDIQ Summary Cost Template – Task Order (indirectly via the Task Order Pricing Template) and the IDIQ Summary Cost Template – Specified Resources. The NTE fee rates shall match the NTE fee rates proposed in Section B.3 of the Model Contract.

(b) Minor Subcontractor Template (MST)

The minor subcontractor template is required of the prime Offeror only. This template is intended to provide the SEB with a concise assessment of the substance of minor subcontracts. An example showing how this template is to be completed is included on the template.

(c) Task Order Pricing Template (TOPT)

This template is only required from the prime Offeror; however, it is designed in such a way that the hours and Non-Labor Resources (NLRs) for the prime, major subcontractor(s) and minor subcontractor(s) combined shall be included in the Productive Hours and NLR sections, respectively. Therefore, the template requires data from both the prime and all subcontractors. This template is for pricing the Task/Delivery Orders provided and covers a twelve month time period. Hours and NLRs are to be allocated to the Task/Delivery Orders areas identified on the template for CY 1, CY 2, and CY 3 based on the Offeror's proposed approach.

The template is divided into four main sections per CY. The first section addresses Productive Hours. The Offeror shall determine the mix of standard labor categories and the labor hours required to perform the Task/Delivery Orders. The second section addresses the Fully Burdened Rates (which are also the rates in Section B.9 of the Model Contract) that were calculated in the FBR template. The third section addresses the Fully Burdened Labor Cost associated with multiplying the Productive Hours by the FBRs. This will be the fully burdened labor cost per labor category. The fourth section of the template provides for the Offeror's estimate of the NLRs necessary to perform the Task/Delivery Order, as well as any applicable burdens applied to NLRs.

The bottom of the template provides for the prime Offeror NTE fee rate input (subcontractor fee shall be included in the FBRs unless a fee sharing arrangement is being proposed) and calculates the fee dollars. The template currently assumes that the NTE fee rate is applied to

all proposed dollars. Offerors may adjust the NTE fee rate application to match their proposal. Note Section B.9 (a). Travel shall not be fee bearing. However, the NTE fee rate proposed here shall match the NTE fee rate proposed in Section B.4 of the Model Contract. Any cost elements proposed to be non-fee bearing here must contain the same contractual language in Section B.9 of the Model Contract.

(d) IDIQ Summary Cost Template for Task Orders (ISCT – TO)

This template is for pricing the Task/Delivery Orders provided and is required of the prime Offeror only. This template covers the estimated price (cost and fee) to perform the Task/Delivery Orders for the Statement of Work (SOW).

The template is divided into three main sections. The first section addresses Productive Hours. The hours included for CY 1, CY 2, and CY 3 shall match 100% of the hours proposed in the Task Order Pricing Template (TOPT). The hours included for each of the following contract years (i.e., Contract Year 4 through Contract Year 10) shall match 100% of the hours proposed in the TOPT for CY 3. **Note: Only innovations with respect to resources that can be implemented in CY 1, CY 2, and CY 3 will be considered for pricing purposes.**

The second section addresses the Contract Rates. The contract rates are the fully burdened rates that were calculated in the FBR and MUST MATCH the rates proposed in Section B.9 of the Model Contract. The third section addresses the Labor Cost and is developed by multiplying the productive hours by the contract rates. This will be the fully burdened labor cost per labor category.

The bottom of the template addresses the NLR and fee dollars. Note Section B.9 (a). Travel shall not be fee bearing. The NLR and fee dollars for CY 1, CY 2 and CY 3 shall match 100% of the NLR and fee dollars proposed in the TOPT. Any proposed escalation associated NLRs should be reflected in the narrative as well as indicated beyond year 1 in the template. Provide the basis for the escalation proposed.

Full Contract Year 4 through Contract Year 10 requirements may not be indicative of Contract Year 3 estimates. Therefore this consideration shall be included in developing the Offeror's FBRs. The pricing of Contract Year 4 through Contract Year 10 is for proposal purposes only and is intended to provide the Government visibility regarding the effect of the proposed rates in the out years. The total price estimate for all contract years will be used for selection purposes.

(e) IDIQ Summary Cost Template for RFP Specified Resources (ISCT – SR)

This template is for pricing the Government Specified Resources identified in Attachment L-7 and is required of the prime Offeror only.

The template is divided into three main sections. The first section addresses Productive Hours. The hours included for each contract year shall match the hours provided in Attachment L 4. The second section addresses the Contract Rates. The contract rates are the fully burdened rates that were calculated in the FBR and MUST MATCH the rates proposed in Section B of the Model Contract. The third section addresses the Labor Cost and is developed by multiplying the productive hours by the contract rates. This will be the fully burdened labor cost per labor category.

The bottom of the template addresses the NLR and fee dollars. The NLR dollars included for each contract year shall match the NLR dollars provided in Attachment L- 4. Offerors shall apply any applicable burdens to the proposed NLR dollars. The bottom of the template also provides for the prime Offeror NTE fee rate input (subcontractor fee shall be included in the FBRs unless a fee sharing arrangement is being proposed) and calculates the fee dollars. The template currently assumes that the NTE fee rate is applied to all proposed dollars. Offerors may adjust the NTE fee rate application to match their proposal. However, the NTE fee rate proposed here shall match the NTE fee rate proposed in Section B of the Model Contract. Any cost elements proposed to be non-fee bearing here must contain the same contractual language in Section B of the Model Contract.

Full Contract Year 4 through Contract Year 10 requirements may not be indicative of Contract Year 3 estimates. Therefore this consideration shall be included in developing the Offeror's FBRs. The pricing of Contract Year 4 through Contract Year 10 is for proposal purposes only and is intended to provide the Government visibility regarding the effect of the proposed rates in the out years. The total price estimate for all contract years will be used for selection purposes.

(f) IDIQ Summary Cost Template Grand Total (ISCT – GT)

This template combines the ISCT-TO and the ISCT-SR for the grand total price. This shall be your estimated price for evaluation purposes for the 10 year period.

The template is divided into three main sections. The first section addresses Productive Hours. These hours are a combination of the hours determined in both the ISCT-TO and the ISCT-SR. The second section addresses the Contract Rates. The contract rates are the fully burdened rates that were calculated in the FBR and MUST MATCH the rates proposed in Section B of the Model Contract. The third section addresses the Labor Cost and is developed by multiplying the productive hours by the contract rates. The Labor Costs are on this template are a combination of both the ISCT-TO and the ISCT-SR. This will be the fully burdened labor cost per labor category for the entire 10 year period.

The bottom of the template addresses the NLR, NLR burdens and fee dollars. The NLR, NLR burdens and fee dollars included for each contract year are a combination of both the ISCT-TO and the ISCT-SR. At the bottom of this template will be your total estimated price for evaluation purposes for the 10 year period.

3. **Other Template Instructions**

(a) Overhead Template (OHT)

The prime Offeror and all major subcontractor(s) shall provide either their Forward Pricing Rate Agreement (FPRA) covering the overhead rate(s) used to calculate the FBRs for this proposal **or** this template. This template shall provide insight into the composition of the burden pool for the proposed overhead rate(s). A separate overhead template for each of the proposed burden pools is to be completed. In addition, provide overhead cost history for the prior three years and for the term of the contract.

The basis for projections of overhead shall also be provided and an explanation in support of any significant changes in either expenses or base of application that exist from one year to the

next. The application base shall be further specifically identified by existing Government work (with contract number, organization, and point of contact – including phone number – identified), existing commercial work (with contract number, organization, and point of contact – including phone number -- identified), the value of this potential award, and forecasted "other business", as appropriate.

In the event the Offeror's fiscal year and anticipated contract year do not coincide, the Offeror shall complete the rate reconciliation showing how their fiscal year overhead rate(s) result in the proposed overhead rate(s) for each contract year. The Government does not require or mandate that you propose indirect rate ceilings. However, if proposed, the template includes an area for overhead ceilings and they must be included in Section B of the Model Contract.

A few cost elements are included on the template that represents the type of cost detail the Government requires visibility into. If these cost elements are not applicable to any proposed indirect cost pool, leave blank. Add additional cost elements, as applicable.

(b) G&A Template (GAT)

The prime contractor and all major subcontractor(s) must provide their Forward Pricing Rate Agreement (FPRA) covering the G&A rate used to calculate the FBRs for this proposal **or** this template. This template shall provide insight into the composition of the burden pool for the proposed General and Administrative (G&A) rate. Identify the estimated G&A expense and explain the method for its calculation. In addition, provide G&A cost history including the actual expense pool and distribution base dollars for the prior three years and for the term of the contract.

The basis for projections of G&A shall also be provided and an explanation in support of any significant changes in either expenses or base of application that exist from one year to the next. The existing business base shall be further specifically identified by existing Government work (with contract number, organization, and point of contact – including phone number – identified), existing commercial work (with contract number, organization, and point of contact – including phone number – identified), the value of this potential award, and forecasted "other business", as appropriate.

In the event the Offeror's fiscal year and anticipated contract year do not coincide, the Offeror shall complete the rate reconciliation showing how their fiscal year G&A rate results in the proposed G&A rate for each contract year. The Government does not require or mandate that you propose indirect rate ceilings. However, if proposed, the template includes an area for overhead ceilings and they must be included in Section B.9 of the Model Contract.

A few cost elements are included on the template which represents the type of cost detail the Government requires visibility into. If these cost elements are not applicable to your proposed G&A cost pool, leave blank. Add additional cost elements, as applicable.

(c) Total Compensation Templates

The following compensation templates are required in order for the Government to perform an evaluation of your labor relations. These templates shall reconcile with the cost templates and the Total Compensation Templates described above, wherever applicable.

1) Compensation Template (a): SALARIES AND WAGES – NON-EXEMPT

The Offeror shall submit a completed Compensation Template (a) for non-exempt personnel for Contract Year 1. This template is required of the prime Offeror and each major subcontractor(s).

In the "LABOR CATEGORY - Offeror's" column, list all proposed labor classifications (included in the cost proposal), by titles from the Offeror's estimating system. Each of the Offeror's Labor Categories shall be mapped to the NASA SLC column. The DOL WD or CBA column shall be mapped to the LABOR CATEGORY – Offeror's column. The "Incumbent Actual Labor Rate" column refers to the direct labor rates which will be made available in the technical library. Depending on whether the category is DOL or CBA covered, include the wage rate in the appropriate column.

The "Contract Year 1 Actual Proposed Labor Rate" is the Offeror's actual proposed composite direct labor rate proposed in Contract Year 1. The "WYE" Column shall include all proposed WYEs per SLC. The "Proposed Labor Escalation %" for the Contract Year 2 through Contract Year 10 columns shall include your annual proposed escalation percentage. A source column has been provided on the template for the Offeror to identify the supporting data for each labor category, which shall include the source data (for example, DOL, CBA, etc.) for non-exempt personnel. An example is included on the template for illustration purposes only.

2) Compensation Template (b): SALARIES AND WAGES – EXEMPT

The Offeror shall submit a completed Compensation Template (b) for exempt personnel for Contract Year 1. This template is required of the prime Offeror and each major subcontractor(s).

In the "LABOR CATEGORY - Offeror's" column, list all proposed labor classifications (included in the cost proposal), by titles from the Offeror's estimating system. Each of the Offeror's Labor Categories shall be mapped to the NASA SLC column. The "Incumbent Actual Labor Rate" column is only applicable to incumbent contractors or subcontractors. Incumbent contractors or sub contractors are to include the actual average current direct labor rate for each SLC.

The "Contract Year 1 Actual Proposed Labor Rate" is the Offeror's actual proposed composite direct labor rate proposed for Contract Year 1. The "WYE" Column shall include all proposed WYEs per SLC. The "Proposed Labor Escalation %" for the Contract Year 2 through Contract Year 10 columns shall include your annual proposed escalation percentage. The "Contract Year 1 Actual Proposed Annual Salary" is the annual salary of the proposed labor category. A source column has been provided on the template for the Offeror to identify the supporting data for each labor category, which shall include the source data (for example, Actual Wages or Wage Survey) for exempt personnel. An example is included on the template for illustration purposes only.

3) Compensation Template (c): FRINGE BENEFITS ANALYSIS OF COMPENSATION PLAN

A separate Compensation Template (c) shall be completed for Exempt, Non-Exempt

Nonunion, and Non-Exempt Union direct labor. This template is required of the prime Offeror and all major subcontractor(s). It should be noted that the minimum hourly fringe benefits rate cannot be less than the DOL specified minimum rate listed in the RFP under Section J for non-exempt employees. The column entitled, "Cost of Fringe Benefit" shall include the cost, not rate, associated with the fringes specified (i.e. life insurance, disability insurance, etc.) that are proposed on this contract for each of the related personnel type (exempt, non-exempt non-union, and non-exempt union). The column entitled, "Percent of Direct Labor Cost" shall include the percentage of each of the related specified fringe costs as a percent of direct labor cost. The column entitled, "Average Cost Per Labor Hour" shall include hourly rates based on the average cost per labor hour proposed per specified fringe element.

4) Compensation Template (d): PERSONNEL AND FRINGE BENEFIT POLICIES

This template is required of the prime Offeror and all major subcontractor(s). This template provides visibility, by employee category (exempt or non-exempt), into personnel policies and fringe benefits, which shall be in effect at the time of contract award. Although only brief explanations are desired, sufficient information is required to allow an evaluation and estimate of all potential costs, which will arise upon award of the contract. Comments are required pertaining to all items identified on the template, for each column – whether or not the policy is written. The established practice of the Offeror and applicability to this proposal shall be provided. If any item identified on the template is not applicable, so state. Items pertinent to the Offeror, which are not identified, must be included on the template if cost recovery is anticipated.

5) Compensation Template TC (e): INCUMBENCY ASSUMPTIONS

This template is required of the Offeror proposed as prime and proposed major subcontractors. This template provides visibility into incumbency assumptions proposed by each Offeror pertaining to incumbent retention, labor rates and seniority rights for fringe benefit purposes.

In the area entitled, "Incumbent Retention", the Offeror shall identify the percentage of all positions that would be staffed with incumbents and the percentage that would be staffed by non-incumbents.

In the area entitled, "Labor Rates", the Offeror shall identify the percentage of incumbents that would be paid current incumbent labor rates, and the percentage of incumbents that would be paid other than the current incumbent labor rates. The Government wants to understand the Offeror's intentions regarding pay for these employees if retained. The Offeror shall provide an explanation, including detailed supporting data, of how the proposed salary structure will facilitate the retention of the proposed percentage of the qualified incumbent workforce.

In the area entitled, "Seniority Rights", the Offeror shall identify the percentage of incumbents that would retain seniority rights for fringe benefits only purposes, and percentage of incumbents that would not retain their current seniority rights for fringe benefits purposes. The Government understands that non-incumbent Offerors may be only able to estimate the current incumbents' seniority levels; however, the Government simply wants to understand the Offeror's intentions regarding seniority

for these employees if retained. The Offeror shall also provide an explanation, including detailed supporting data, of how the proposed fringe benefit structure will facilitate the retention of the proposed percentage of the qualified incumbent workforce in the cost/price narrative of your cost proposal.

(d) Cognizant Audit Office Template (CAOT)

This template is required of each prime contractor, teaming partner, joint venture partner, and major subcontractor that meets the major subcontractor.

The purpose of this template is to provide NASA with contact information for the Defense Contract Management Agency (DCMA), Defense Contract Audit Agency (DCAA), and the Offeror. All contact information shall be current and include names, addresses, telephone numbers and e-mail addresses. The Offeror information shall consist of the specific location (address or addresses for prime and all major subcontractors where the auditable cost information physically resides that supports amounts proposed).

In addition, the Offeror shall provide DCAA Audit Report Numbers and Dates, as well as the status of the Offeror's systems listed in the template. For the current Forward Pricing Rate Agreement (FPRA) or Forward Pricing Rate Proposal (FPRP) used in developing its cost proposal, the Offeror shall provide the effective dates and copies of the FPRA letters, (if applicable) or the current status of FPRP with the proposal submission.

Note: If the Offeror does not know the cognizant DCAA field audit office, the information is readily available on the world-wide-web at www.dcaa.mil. Once the web site is accessed, click on the "Audit Office Locator" link. Enter the Offeror's company's 5 digit Zip Code in the area provided and click on the adjacent "search" button. (It is important that the Offeror enter the 5 digit Zip Code for the Offeror's company location where auditable books and records supporting amounts in the Offeror's proposal **physically** reside.) Once the search is completed, the cognizant field audit office physical and E-Mail addresses and Voice and FAX telephone numbers will be displayed

(e) Phase-In Template (PIT)

The phase-in template is required of the prime Offeror only and is designed to show the total phase-in cost (includes all subcontractor phase-in costs and fee) proposed. This template must be supported by a narrative basis of estimate (BOE). Include all skills and hours on this template and add rows if needed to account for all labor required. Use the SLCs for skill mix if appropriate or include your labor mix on the template with a brief job description in the narrative. The BOE should include a discussion of labor skill mix and significant non-labor resources (materials/supplies, equipment, other, etc.) necessary for accomplishment of phase-in requirements. The phase-in template is to include ALL phase-in costs necessary for full contract implementation.

(e) **Supplemental Cost Data**

The following supplemental cost data, where appropriate, shall be submitted with the Cost/Price Volume:

1) Financial Accounting Standard (FAS) 13 Analysis

If an Offeror is proposing to lease off-site facilities in order to perform this effort, the Offeror shall perform a FAS 13 analysis, as required by FAR 31.205-36 and FAR 31.205-11, in determining the classification of a lease as operating or capital.

The Offeror shall submit copies of any proposed lease, along with a statement of whether it considers the lease to be capital or operating, for purposes of reimbursement under the Contract. Regardless of whether the Offeror considers the lease to be operating or capital, the Offeror shall submit the rationale, with sufficient substantiation, to enable the Government to conclude that the Offeror's categorization and proposed cost of the lease is correct. The Offeror shall indicate where these costs are included in the cost proposal elements. The Offeror should also include an analysis detailing the cost impact of treating the lease as an operating lease and the cost impact of treating the lease as a capital lease. Finally, the Offeror should discuss the significance of the impact of fluctuating Task/Delivery Orders issued as a result of this IDIQ contract relative to the proposed lease and/or lease cost and how the Offeror would mitigate the cost impact upon on Government, if possible.

2) Cost of Money for Facilities Capital

The Offeror may choose to include the cost of money for facilities capital as authorized by Cost Accounting Standard (CAS) 414 and FAR 31.205-10 in the proposal. In the event the Offeror does not propose cost of money for facilities capital, FAR clause 52.215-17, "Waiver of Facilities Capital Cost of Money" shall be included in the Model Contract.

3) Fee

Include a discussion of how the proposed Not-To-Exceed (NTE) award fee rate was derived and why it is reasonable for the type of effort. If a fee pool sharing arrangement is proposed, include a discussion of the arrangement and the distribution of fee earned.

(End of provision)

L.22.6 VOLUME IV – MODEL CONTRACT AND RESPONSIBILITY

Part I: Standard Form 33 and Completed Model Contract

The following items are parts of the contract that the Offeror is required to complete:

Contract Selection	Areas of Model Contract Offerors are Required to Complete
Section A	Complete, sign, and date the SF 33
Section B	B.3: Current Contract Value B.5: Limitation of Funds (Fixed-Price Contract) B.9: Fully Burdened Rate Table for Pricing Cost Reimbursement (CR) Task/Delivery Orders
Section C	NONE
Section D	NONE
Section E	NONE
Section F	NONE

Section G	NONE
Section H	H.3: Representations, Certifications And Other Statements Of Offeror H.6: Small Business Subcontracting Goals H.9: Key Personnel And Facilities
Section I	I.13: Rights To Proposal Data (Technical)
Section J	Offerors shall submit the required documents.*

*DRDs due with the proposal will be incorporated after approval.

Part II: Representations, Certifications and Other Statements of Offeror
Offerors shall submit their completed Representations and Certifications. This material is to be provided as part of the model contract.

Part III: Other Data
Additional information is required to determine responsibility in accordance with FAR 9.104-1, General standards. Other Data shall include the items below:

A. Organizational Conflict of Interest Information

The Offeror shall provide an OCI Mitigation Plan in accordance with DRD HHPC-MGMT-10.

B. Business Systems Adequacy

FAR 16.301-3, Limitations, requires that a contractor's accounting system be adequate for determining costs applicable to the contract prior to the award of a cost-reimbursement contract. The Offeror shall provide evidence of an adequate accounting system as determined by the cognizant Government administrative office for accumulating and reporting incurred costs. An adequate accounting system is not an evaluation criterion. It is a basic contract requirement with a pass/fail determination. A contract may only be awarded to the Offeror(s) who are determined to have an adequate accounting system.

Additionally, state whether all business systems, including but not limited to accounting, property control, purchasing, estimating, project reporting, and employee compensation, which require Government acceptance or approval (as applicable), are currently accepted/approved by DCAA, without condition. Provide the date of acceptance/approval for each applicable system and the cognizant contract administration office. Explain any existing conditional acceptances/approvals and the compliance status of any system(s) for which acceptance or approval is currently withheld.

C. Government Property Information

The Offeror shall provide a Government Property Management Plan in accordance with DRD HHPC-BP-09.

D. Export Control Information

The Offeror shall provide an Export Control Plan in accordance with DRD HHPC-BP-04.

(End of Provision)

LIST OF ATTACHMENTS

Attachment	Title
L-1	Standard Labor Categories
L-2	Scenarios
L-3	IDIQ Task Orders
L-4	Government Resource Estimates
L-5	Small Business Subcontracting Tables
L-6	Past Performance Questionnaire Template
L-7	IDIQ Cost Workbook
L-8	Key Personnel
L-9	Subcontractor/Teaming or Joint Venture Partner/Program Manager Consent for The Release of Past Performance Information to the Prime Contractor
L-10	Past Performance Information Matrix

(End of Provision)

ATTACHMENT L–1: STANDARD LABOR CATEGORIES (SLC)

In Alphabetical Order:

SLC	SLC Guidelines
Standard Labor Categories	The Offerors will develop their cost estimates using their estimating system. The Offerors will map their labor categories to the SLCs using the guidelines provided below. SLCs are intended to broadly group proposed labor into a manageable number of categories. These guidelines do not address all the possible specific skills, or requirements to acquire an understanding of the complexities of the work required to successfully meet the HHPC requirements. Accordingly, Offerors must propose the resources required to successfully meet these requirements. Offerors are allowed to include additional labor categories that do not easily map into the SLC below; however, the Offerors must provide job descriptions similar to the guidelines provided in the following table.
Administration Specialist I	Responsible for performing daily office tasks such as filing, recording, maintaining records, copying, posting, and other similar duties, using a computer terminal, and other word processors. Follows organization and department procedures to complete tasks in a timely manner. Familiar with standard concepts, practices, and procedures within a particular field. Requires a high school diploma or its equivalent. Examples include Secretary and Clerk.
Administration Specialist II	Performs functions of Administration I Specialist along with additional responsibilities and qualifications. Requires a high school diploma or its equivalent and a minimum of 5 years of experience in the field or in a related area. Example is a Data Entry Clerk.
Administration Specialist III	Performs functions of Administration Specialist II along with additional responsibilities and qualifications. Requires a high school diploma or its equivalent and a minimum of 8 years of experience in the field or in a related area. Example is an Administrative Assistant, Senior Secretary, or Data Analyst.
Architect	Requires a Bachelor's degree and 2-4 years of experience in conceiving, designing, and constructing new or modified buildings or structures.
Business Specialist I	Prepares contract proposals and administers major contracts and task/delivery orders. Also, may negotiate contractual provisions with potential partners. Typically requires a Bachelor's degree in a related area and normally possess 3 years of work experience. Has knowledge of standard concepts, practices, and procedures within the Business field.

Business Specialist II	Performs functions of Business Specialist I along with additional responsibilities and qualifications. Coordinates and monitors the scheduling, pricing, and technical performance of programs. Responsibilities also include aiding in the negotiation of contracts and contractual changes and coordination preparations of proposals, plans, specifications, and financial conditions of contracts. Ensures adherence to master plans and schedules and develops solutions to program problems. Familiar with standard concepts, practices, and procedures within a particular field. Typically requires a Bachelor's degree and a minimum of 5 years of experience in a field or in a related area.
Configuration Management Specialist I	Establishes, implements, and verifies compliance to NASA configuration management policies, requirements, and procedures. Prepares configuration management documentation. Establishes and maintains all systems for configuration identification, control, verification, and accounting. Monitors and audits other program elements and contractors adherence to configuration management requirements and procedures. Typically requires a Bachelor's degree.
Configuration Management Specialist II	Performs functions of Configuration Management Specialist along with additional responsibilities and qualifications. Typically requires a Bachelor's Degree and 5 years of experience.
Drafter	Performs basic drafting functions. Should have an Associate's degree in a related area.
Drafter (Senior)	Performs complex drafting functions. Requires a minimum of an Associate's degree in a related area and at least 4 years of drafting experience.
Engineer I	Responsible for design, development, test, implementation, and analysis of technical products and systems. Performs engineering design evaluations. May develop a range of products. Has knowledge of commonly used concepts, practices, and procedures within a particular field. Relies on instructions and pre-established guidelines to perform the functions of the job. Requires a Bachelor's degree in Engineering in the field or in a related area.
Engineer II	Performs functions of Engineer I along with additional responsibilities and qualifications. Familiar with commonly used concepts, practices, and procedures within a particular field. Requires a Bachelor's degree in Engineering and a minimum of 5 years of experience in the field or in a related area.
Engineer III	Performs functions of Engineer II along with additional responsibilities and qualifications: Recognized as technical leader and resource. Responsible for all internal activities and product development. Proficient with a variety of the field's concepts,

	practices, and procedures. Relies on extensive experience and judgment to plan and accomplishment goals. Responsible for the solution of complex total system problems. Requires a minimum of a Bachelor's degree in Engineering and normally possess 10 years of applicable experience. License and certification may be required.
Engineer IV	Expert in engineering. Requires a minimum of a Bachelor's degree in Engineering and may be expected to have a related master's degree and normally possess 15 years of related experience. Accomplished in a variety of the field's concepts, practices, and procedures. Relies on extensive experience and judgment to plan and accomplishment goals. Responsible for the solution of complex total system problems. Directs, guides, and coordinates activities of team/teams of technical personnel performing complex engineering activities.
Engineer V	Authority in engineering. Accountable for design, development, test, implementation, and analysis. Recognized as technical expert and resource in specialized areas of engineering. Recommends alterations and enhancements to improve quality of products and/or procedures. Requires a minimum of a Bachelor's degree in Engineering and may be expected to have a related Master's or higher degree and normally possess 20 years of related experience. Consummate expert in a variety of the field's concepts, practices, and procedures. Relies on extensive experience and judgment to plan and accomplish goals. Responsible and accountable for the solution of complex total system problems. Directs, guides, and coordinates activities of team/teams of technical personnel performing complex engineering activities. A wide degree of autonomy, creativity, and latitude is expected.
Engineering Technologist I	Assists in the creation of solutions to engineering design problems and technical support to the operation or testing of engineering or manufacturing systems. Has knowledge of commonly-used concepts, practices, and procedures within a particular field. Relies on instructions and pre-established guidelines to perform the functions of the job. Works under the direction of an engineer or higher level Engineering Technologist. Requires a HS diploma and 5 years of experience or Bachelor of Science in Engineering Technology or related field.
Engineering Technologist II	Performs functions of Engineer Technologist I along with additional responsibilities and qualifications. Assists Engineers in the creation of solutions to engineering design problems and technical support to the operation or testing of engineering or manufacturing systems. Requires a HS diploma and 10 years of experience or Bachelor of Science in

	Engineering Technology or related field and 3 years of experience.
Engineering Technologist III	Performs functions of Engineer Technologist II along with additional responsibilities and qualifications. Requires a HS diploma and 15 yrs of experience or Bachelor of Science in Engineering Technology or related field and more than 5 years of experience.
Information Technologist (IT) I	Reviews, analyzes, and modifies programming systems including encoding, testing, debugging and installing to support an organization's application systems. Consults with users to identify current operating procedures and to clarify program objectives. Typically requires a bachelor's degree in a related area or experience in the field. Has knowledge of commonly used concepts, practices, and procedures within a particular field. Relies on instructions and pre-established guidelines to perform the functions of the job.
Information Technologist (IT) II	Performs functions of IT I along with additional responsibilities and qualifications. Expected to write documentation to describe program development, logic, coding, and corrections. Writes manual for users to describe installation and operating procedures. Familiar with relational databases and client-server concepts. Relies on experience and judgment to plan and accomplish goals. Typically requires a Bachelor's degree in a related area and a minimum of 5 years of experience in the field or in a related area. An example would be a Software Programmer.
Information Technologist (IT) III	Performs functions of IT II along with additional responsibilities and qualifications. Writes manual for users to describe installation and operating procedures. Must have a working knowledge of relational databases and client-server concepts. Relies on extensive experience and judgment to plan and accomplish goals. Responsible for the solution of complex total systems problems. Typically requires a Bachelor's degree in a related area and normally possess 10 years of experience in the field or in a related area. Examples include Database Coordinator or Senior Programmer.
Information Technologist (IT) IV	Expert in Information Technology. Typically requires a Bachelor's degree in a related area and normally possess 15 years of experience in the field or in a related area. Must have a working knowledge of relational databases and client-server concepts. Relies on extensive experience and judgment to plan and accomplish goals. Responsible for the solution of complex total systems problems. Example would

	be Database Manager or Network Administrator.
Manager I	Ensures employees in functional areas follow established procedures and generate finished work products under time and budgetary constraints and ensures product yields the expected outcome and meets established quality levels. Familiar with standard concepts, practices, and procedures within a particular field. Relies on extensive experience and judgment to plan and accomplish goals. Performs a variety of complex tasks. Requires a Bachelor's degree and normally possesses 5 years of experience in the field or in a related area.
Manager II	Performs functions of Manager I along with additional responsibilities and qualifications. Directs work of supervisors and other employees. Demonstrates experience managing a diversified team. Strong interpersonal and team building skills. Proven track record of completing projects on schedule, within budget with satisfied customers. Typically reports to a Program Manager and has approximately 5-7 years of experience in the field or in a related area.
Med Level I	Entry level medical technologist positions such as Laboratory Technologist; Aerospace Medical Technician; or Emergency Medical Technologist. Appropriate certification required.. Example would be a Medical Technician.
Med Level II	Mid-level medical technologist positions such as X-Ray Technician; Laboratory Supervisor; LVN; Dental Assistant/Hygienist; EAP Counselor; Exercise Physiologist; Aerospace Physiologist, Paramedic; Process Improvement Coordinator; Registered Dietician. Appropriate degree or certification required.
Med Level III	Higher-level medical positions such Registered Nurse, EAP Lead, EMR Administrator, Case Manager, Aerospace Physiologist (lead), Wellness Program Director, Exercise Physiologist (lead), Medical Records Supervisor, Clinical Psychologist, Pharmacist, or Registered Dietician. Bachelor or Post-graduate degree and appropriate certification required.
Med Level IV	Physician-level medical positions. A Medical Doctor or Doctor of Osteopathy licensed to practice in the State of Texas.
Med level V	Senior Physician-level positions.
Planner/Scheduler I	Responsible for reviewing, planning, estimating, and coordinating the efficient execution of manufacturing or maintenance work requests using project management software. Must be familiar with standard concepts, practices, and procedures within the manufacturing or

	maintenance field. Must perform a variety of tasks requiring precise attention to detail, excellent communication and computer skills, and the ability to read and interpret engineering drawings. Must follow organizational and departmental procedures to complete tasks in a safe and timely manner. Must be familiar with work control applications and processes being utilized on the contract. Typically works under the direction of a higher level Planner/Scheduler or works on small to medium sized projects. Requires a High school Diploma and a minimum of 2 years of experience.
Planner/Scheduler II	Performs functions of Planner/Scheduler I along with additional functions and qualifications. Requires a High School Diploma and a minimum of 5 years of experience.
Product Assurance Manager	Experience in Reliability, Maintainability, System Safety and Quality Assurance. Familiar with a variety of accepted quality assurance concepts, practices, and procedures. Responsible for Quality Management System. Develops, implements, and manages Quality plans, Reliability and Maintainability plans, programs, and policies. Relies on experience and judgment to plan and accomplish goals. Assures appropriate inspection and resources in facilities and laboratories. Requires a Bachelor's degree and 10 or more years of experience.
Professional I/Technical Level I	Entry-level professional or technical positions. Requires either Bachelor-level degree or equivalent years of associated work experience.
Professional II/Technical Level II	Mid-level professional or technical positions such as Field Health Professionals (Industrial Hygienist, Ergonomists, Radiation Technician, etc.); Chemist; Training Coordinator; QA Coordinator. Bachelor's degree or equivalent required.
Professional III / Technical Level III	Performs functions of Professional II/Technical Level II in addition to having additional responsibilities and qualifications. Includes positions such as Industrial Hygienist (Manager); Senior Health Physicist; Radiation Health Officer; Chemist (supervisor); Senior Industrial Hygienist. Bachelor's degree and 5 years of experience required.
Program Manager	Coordinates and monitors the scheduling, pricing, and technical performance of this contract. Ensures adherence to master plans and schedules develops solutions to program problems, and directs work of employees assigned to program from various departments. Ensures projects are completed on time and within budget. Acts as advisor to program team regarding projects, tasks, and operations. Requires a Bachelor's degree and normally possess 10 years of experience in the

	field or in a related area. Familiar with standard concepts, practices, and procedures within a particular field. Relies on extensive experience and judgment to plan and accomplish goals. Performs a variety of complex tasks.
Project Controls Specialist I	Performs project controls support for engineering, design and delivery projects. Assists in the development and maintenance of project schedules for multiple projects. Assists in implementing standard project management practices to support good schedule, project management and reporting processes across multiple areas. Assists in preparing monthly contract management summary reports and monthly estimates at completion (EAC). Participates in audits, both internal and external. Typically performs tasks under the direction of higher level Project Controls Specialists. Typically requires a Bachelor's degree in related field and 0-2 years of experience.
Project Controls Specialist II	Performs functions of Project Controls Specialist I along with additional responsibilities and functions. Typically requires a Bachelor's degree in related field and 5 years of experience.
Quality Assurance Specialist I	Performs receiving inspection on pre-manufacturing stock, test articles, and test support equipment. Witnesses Mandatory Inspection Points, Performs visual and nondestructive evaluation (NDE) inspections for welded hardware. Documents discrepancies for facilities and hardware. Witnesses' assembly of hardware and facility/test buildup. Witnesses/verifies technician workmanship. Witnesses' test build-up configuration and tests. Verifies contamination control requirements. Accurately reads engineering drawings. Adheres to all published safety procedures. Typically requires minimum of 2 years of experience in process control and laboratory operations.
Quality Assurance Specialist II	Performs functions of Quality Assurance Specialist I along with additional responsibilities and qualifications. Develops, applies, revises, and maintains quality standards for in process and final inspection. Performs dimensional and physical inspection on precision measuring equipment. Witnesses Mandatory Inspection Points, documents nondestructive evaluation (NDE) inspections for flight and flight-like hardware. Adheres to all published safety procedures. Typically requires minimum of 5 years of experience in process control and laboratory operations.
Quality Engineer I	Assures the quality of products. Evaluates technical documents such as drawings and specifications for adequate quality requirements and in-process controls. Performs flight equipment acceptance reviews. Prepares

	test readiness review documentation and identifies hardware pre-test status. Approves work authorization documents and establishes mandatory inspection points. Provides inputs to milestone reviews and boards. Assists Quality Assurance Specialists. Evaluates discrepancy reports and concurs on Material Review Board decisions. Screens non-conformances for problem reporting and corrective action. Supports the disposition and resolution of reported problems and tracks effectiveness of corrective actions. Evaluates engineering changes and waivers for quality assurance impacts. Evaluates inspection and test methods, tools, instruments, and processes for effectiveness. Actively assists and supports product delivery/acceptance reviews. Abides by and enforces adherence to published safety procedures. Requires a Bachelor's degree in appropriate field of engineering with a minimum of 1 year experience.
Quality Engineer II	Performs functions of Quality Engineer I along with additional responsibilities and qualifications. Requires a Bachelor's degree in appropriate field of engineering and 5+ years of experience.
Quality Engineer III	Performs functions of Quality Engineer II along with additional responsibilities and qualifications. Requires a Bachelor's degree in appropriate field of engineering and 10+ years of experience. Prefer Certified Quality Engineer (CQE) designation.
Safety Manager	Familiar with a variety of accepted safety concepts, practices and procedures. Develops, implements, and manages Safety plans, programs, and policies. Responsible for maintenance of safety/accident records. Relies on experience and judgment to plan and accomplish goals. Assures safety coverage in facilities and laboratories. Familiar with OSHA requirements of 29 CFR 1910 and 1926. Requires a Bachelor’s degree in engineering or science. Requires Certified Safety Professional or minimum of 10 years of experience in the safety profession and minimum of 3 years of experience in a supervisory capacity.
Scientist I	Assists with or performs professional work in research, using theoretical and experimental investigation in his/hers specific discipline. Develops methodologies to solve problems. Familiar with a variety of the field’s concepts, practices, and procedures. A Bachelor’s degree is required. Example would be a Science Coordinator.
Scientist II	Performs functions of Scientist I along with responsibilities and qualifications: A Bachelor’s degree and a minimum of 5 years of experience or a Master's degree are required. Example would be a Science Assistant.

Scientist III	Performs functions of Scientist II along with additional responsibilities and qualifications. Responsible for the solution of complex total systems problems. A Bachelor's degree and a minimum of 10 years of experience, a Master's degree and a minimum of 5 years of experience or a Doctorate-level degree is required.
Scientist IV	Performs functions of Scientist III along with additional responsibilities and qualifications. Expert in scientific field. May direct major projects requiring integration/coordination across multiple scientific disciplines. Performs professional work in research, using theoretical and experimental investigation in his/hers specific scientific discipline at a level of complexity that requires unique capability. Develops methodologies to solve problems. Familiar with a variety of the field's concepts, practices, and procedures. May direct and coordinate activities of team/teams of technical personnel performing complex scientific activities. A Master's degree and a minimum of 10 years of experience or a Doctorate-level degree and at least 5 years of experience are required.
Scientist V	Performs functions of Scientist IV along with additional responsibilities and qualifications. Authority in scientific field with national and or international recognition in his/her area of expertise. Responsible for major projects requiring integration/coordination across multiple scientific disciplines. Responsible for professional work in research, using theoretical and experimental investigation in his or her specific scientific discipline at a level of complexity that requires unique capability. May direct and coordinate activities for team/teams of technical personnel performing complex scientific activities. Relies on extensive experience and judgment to plan and accomplish goals. Responsible and accountable for the solution of complex total system problems. Directs guides and coordinates activities for team/teams of technical personnel performing complex scientific activities. Requires a Doctorate-level degree and at least 10 years of related experience.
Statistician	A Bachelor's degree in statistics with training in experimental design, statistical interpretation of biomedical data or data analysis.
Statistician (Senior)	A Bachelor's degree in statistics with more than 5 years of experience or a post-graduate degree in statistics is required.
Supervisor	Supervises activities and oversees personnel. Ensures proper procedure, and helps devise new techniques. A supervisor has full authority and may be considered a member of management. Familiar with a variety of the field's concepts, practices, and procedures.

	Typically requires a Bachelor's degree and 5 years of experience in area of specialty.
Supervisor (Senior)	Performs functions of Supervisor in addition to having additional responsibilities or qualifications. Requires a Bachelor's degree and more than 10 years supervisory experience.
Technician I	Responsible for setting up, checking operational and experimental machinery, circuitry, and equipment. Follows pre-established guidelines, procedures and engineering specifications. Has knowledge of commonly used concepts, practices, and procedures within a particular field. Relies on instructions to perform the functions of the job. Requires a high school degree or its equivalent.
Technician II	Performs functions of Technician I along with additional responsibilities and qualifications. Proficient in the use of standard concepts, practices, and procedures within a particular field. Requires a high school degree or its equivalent and a minimum of 4 years of experience in a field or in a related area.
Technician Specialist	Possesses extensive and detailed knowledge of specific testing or operational processes employed in applicable areas. Has demonstrated capability to apply technical knowledge to solve new problems that require innovative approaches and skills normally achieved only through long experience. Interfaces with engineers and/or scientists at all levels to develop operational and experimental machinery, circuitry, and equipment. Works with and provides technical guidance for lower level technicians. Typically requires a high school degree or its equivalent and 15 years of experience in the field or related area and may require additional experience or education in one of the physical sciences directly applicable to the tasks performed. May instruct, lead and direct the work of others.

EXAMPLES OF MAPPING SKILLS INTO SLCs

The skills below are provided only as examples of how certain labor categories proposed by the Offeror may fit into the SLCs identified by the Government.

Med Level
Board certified doctors, Nurses, Pharmacist, Registered Nurses, Medical Technologist, Clinical Psychologist

Scientist

Technician Materials testing, mechanical, chemical, metallurgical, vacuum, electrical, etc.

Business Specialist Procurement Clerk, Accounts Payable Clerk, Budget Analyst, Financial Analyst, Cost Accountant

Microbiologist, Toxicologist, Neuroscience, Cardiology, Chemist, Physicist, Materials Scientist,

Information Technology Data Acquisition and Control Programmer, Database Administrator, Modeler, etc.

Engineer
Mechanical, electrical, aerospace, chemical, metallurgical, materials, civil, biomedical etc.

Administration Specialist Secretary, Clerk, Office Administration, Specialist, Technical Editor, etc.

ATTACHMENT L – 2 – SCENARIOS

Proposal Scenarios

Offerors are required to address the technical scenarios detailed in table below as required by Clause M.4.2 "Technical Approach (TA) Mission Suitability Sub-factor 2." The Offeror's response will be evaluated in accordance with Clause M.4.2 "Technical Approach (TA) Mission Suitability" of the RFP.

HHPC Scenarios

Paragraph	Title
A	Consolidation and Relocation of Science and Research Laboratories
B	ISS On-Orbit Medical Event
C	Payload Processing Affects Ground Personnel
D	Occupational Surveillance Strategy for a Newly Identified Medical Condition.

A. Proposal Scenario 1 – Consolidation and Relocation of Science and Research Laboratories

The majority of the distributed HHPD science and research laboratories are planned to be consolidated and relocated to a new facility. These laboratories have ongoing operational support to the ISS Program, HRP research, as well as other activities. The move needs to accommodate these ongoing activities with minimal downtime and must address contingency planning. The onsite laboratories resident in the HHPD expected to move include the Animal Care Facility, Anthropometry & Biomechanics Facility, Bone & Mineral, Cardiovascular Physiology, EVA Physiology, Exercise Physiology & Countermeasures, Neuroscience, Nutritional Biochemistry, Pharmacotherapeutics, Core Analytical, Environmental Health, Immunology, Microbiology, Radiation and Toxicology & Environmental Chemistry. The labs will need to be scheduled, packed, moved, and setup in the new facility. The "downtime" for the laboratories' actual move is to be as short as possible. Time will be of the essence to accomplish this move given that spaceflight operations and human research shall need to continue.

Explain the overall planning approach, roles and responsibilities, and management strategy for the relocation. Also, describe the overall approach for continuing operations and research, and the identification and mitigation of any potential contingency situations.

NASA Assumptions

- The new facility is ready for occupation and to receive the laboratory and all related equipment and consumables. Existing instrumentation will move to the new facility.
- Many laboratories will have new cabinetry/workbenches therefore not all of current furnishings will be moved to the new facility.
- The timeframe to execute the move is not to exceed two-three months.
- Center Operations has contracted with a moving company.
- Laboratory personnel will be expected to participate in pre-move inventories and packing contents of lab workbenches, storage cabinets/closets, and unpacking and restocking the laboratory after it is moved.

B. Proposal Scenario 2 – ISS On-Orbit Medical Event

Two US Crewmembers and one JAXA crewmember report some gastro-intestinal discomfort

about four hours after completing a dinner. The affected crewmembers were able to find relief via medication available in the medical kit taken as directed by the flight surgeons; however, the crew was unavailable to support on-orbit operations for approximately 24 hours after initial diagnosis. This specific instance was considered to be a minor illness.

One week later, two USOS crewmembers experienced similar gastro-intestinal discomfort. Because of the re-occurrence of this medical event, a root cause analysis and preventive measures must be performed to understand the cause of this problem and preclude this condition from re-occurring, thereby preventing a more serious health impact to the crew and disruption of operations in the future. There are a total of six crewmembers on ISS: two US, one JAXA, and three Russians.

Explain the end-to-end processes and functional responsibilities across the HHP Directorate, Center, and Program organizations responsible for addressing and resolving the issue, and maintaining the health and safety of the crew during all real-time mission operations.

NASA Assumptions

- The affected crewmember's meals were from packaged food provided by the U.S.
- The remaining onboard USOS stored food of this variety is from the same lot.
- The suspect meals comprise a significant percentage of the onboard stowed meals.
- Assuming nominal food consumption, the remaining unaffected/non-suspect food will only support the USOS crew of three for three months.
- Next cargo resupply mission is scheduled to arrive in four months.
- Next crew rotation is scheduled to arrive in five months.

C. Proposal Scenario 3 – Payload Processing Affects Ground Personnel

A JSC employee falls ill after working with a ground unit of spaceflight hardware for an experiment (i.e. a payload). The employee needs immediate medical attention. Another version of this payload has already launched and the Transfer Vehicle is docked to the ISS, but the payload has not been destowed. The hardware is part of a critical experiment and there is a priority on assessing the risk, mitigating the hazard, and implementing the experiment.

Describe the occupational health processes and procedures that need to be fulfilled to address the ground worker's exposure including medical response and long-term surveillance. Also, determine the proper sequence of procedures and processes for addressing the flight unit issue.

NASA Assumptions

- The cause of the illness was a toxic gas present at the work site where the payload was located, while a prime suspect, the payload has not been determined to be the source.
- Current on-orbit air quality surveillance hardware is capable of detecting the toxin of interest and appropriate PPE to address the risk of de-stowing is available on ISS.
- The ground employee's response is not life threatening, but requires follow-up testing to determine if there might be a long term health outcome.

D. Proposal Scenario 4 – Occupational Surveillance Strategy for a Newly Identified Medical Condition

A Crewmember who has returned from a long duration ISS spaceflight has evidence of a serious health problem. Presentation of the medical condition post-flight suggests that the health problem started during the mission and went undetected since the crewmember was screened with no

findings and was completely not symptomatic prior to flight. There were no mechanisms for detection available during the mission. The concern is that this is a result of spaceflight exposure but the specific cause is unknown.

Symptoms do not appear to be indicative of an acute risk, but a chronic remodeling response. This remodeling may alter risk factors for long-term health outcomes and thus is a high priority issue for a new occupational surveillance strategy including pre-flight, in-flight, and post flight components and, at a minimum, requires deployment of new medical flight hardware. Due to the nature of the risk, HHPD and the ISS Program would like to have flight hardware operational as quickly as possible to begin occupational surveillance on the next 12 month mission.

Describe the comprehensive approach to addressing the project management, integration, research, hardware certification, and operations.

NASA Assumptions

- In order to understand the progression of the disorder, surveillance targets in the environment and the body to monitor must be identified to understand if existing mitigations can interfere with the (pathological) process or if new mitigations need to be developed and validated.
- Current commercial medical hardware is available to address surveillance needs.

ATTACHMENT L-3: IDIQ TASK/DELIVERY ORDERS

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1. Definitions

Definitions of Tasks/Activities called out throughout the Task Orders

Word/Phrase	**Definition**
BM	Benchmark (BM) -used to establish an equivalent workload for products contained in this SOW to support/justify the basis of estimate.
Change Evaluation Form (CEF)	A change evaluation form represents information entered into a Change Evaluation Tracking Information (CETI) tool developed by the Payloads Research Integration Office that is dispositioned for implementation by the team. The CEF is the mechanism by which change is incorporated into the ISS Program Payload Tactical Plan which documents implementation requirements for NASA and IP research.
Civil Service Personnel	NASA employees assigned to JSC and any other Federal government employees.
CoFR Reports	Certificate of Flight Readiness (CoFR) reports shall consist of one (1) CoFR endorsement, one (1) open work tracking log, and one (1) PowerPoint summary presentation for each increment, stage, or flight during an increment. CoFR Endorsements and open work are entered into a Boeing-supplied user interface tool which is then approved by NASA as the CoFR readiness statement for ISSMP. The NASA Increment Manager generates CoFR summary material is compiled in a PowerPoint presentation for communication of information to the interfaces required for implementation of ISSMP research. The Increment Lead will provide inputs and redlines prior to CCB presentation.
Configuration Control Board (CCB)	The ISSMP CCB is a NASA configuration control board responsible for baselining and controlling changes to project requirements. The ISSMP Contractor Implementation Board (CIB) is the contractor implementation board responsible for baselining and controlling changes to contractor implementation requirements. Change Requests (CRs) are used to identify changes and collect technical, schedule, and cost impacts.
Countermeasure	Application of a set of procedures or therapeutic means to prevent or minimize adverse health and medical events resulting from exposure to short- or long-duration space flight.
Complement	The integration and alignment of studies within a study or analog mission.

Word/Phrase	Definition
Crew Training Strategy Plan Prepared	The Crew Training Strategy Plan represents the crew training strategy for ISSMP. Work begins on the Crew Training Strategy at I-14 by developing an initial draft of the increment training plan in a spreadsheet; which includes prime and backup crewmembers, the list of hardware to be trained, experiments to be trained, and required ISSMP briefings. Additional data included are session times, previous dates and hours trained on these activities, and projected dates for remaining training. Once the training plan is complete, a presentation is developed for discussion with the Training Strategy Team (TST), consisting of stakeholders from ISSMP, Payload Operations Integration Center personnel, and the Crew Office. Changes to an increment training plan and TST presentation are driven by ISS Program changes (for example but not limited to: crew swap outs, etc.). The TDO shall include two (2) initial TST Training Plan spreadsheets, 5 updates, and 6 TST presentations. The Crew Training Strategy is completed once the members of the TST approve it and the approval is documented in the minutes of the TST meeting by the Payload Operations Integration Center (POIC) Operations Lead. Once the TST is completed, planning begins for crew training with the completion of lesson plans and courseware for any new experiments or hardware applicable to an increment. Lesson plans are a written plan to execute a specific training class. The TDO shall develop twelve (12) new or revised lesson plans during the PoP. Courseware packages consist of lesson materials utilized to execute crew training. Each package consists of a presentation that includes a lesson overview, on-orbit operations summary, and summation of key points to remember. Twelve (12) courseware packages, to include 3 overview videos, shall be developed and completed during the PoP. A total of two (2) Crew Qualification Requirements Matrices will be reviewed.
Electronic Medical Record	The General Electric Company (GE) Medical Systems Centricity software and database which permits documentation of clinical care at the point of care, used in both the FMC and OMC
Evidence-Based Medicine	Integration of best research evidence with clinical expertise and patient values
Experiment	A NASA approved research experiment which will utilize either ISS long duration crewmembers as subjects and/or operators
Facility Activity Reports	A Facility Activity Report is developed to capture information about non crew training sessions conducted in Payload Development Lab (PDL) 1 as well as the activities required to prepare the facility for training. Besides crew and GSP training covered elsewhere, the PDL supports sessions other than crew training such as procedure reviews and validations, equipment checkouts, maintenance activities, set-up and tear-down for training classes, and facility tours. The TDO shall provide (6) training hardware inventories to track hardware used in the PDL and provide Twelve (12) Facility Activity Reports for the PoP.
Feasibility Study	A formal presentation or report detailing the results of a study to identify the most balanced technical solutions among a set of proposed viable solutions or find the configuration or parameters that best meet performance or certification requirements. Content of Studies developed will be mutually determined by the NASA/SF TDO Manager and the contractor TDO and/or Cost Account Manager.

Word/Phrase	Definition
Flight Manifests	Each vehicle destined for ISS may have a cargo manifest for ISSMP experiment hardware and resupply items. Initial manifest inputs are created at the time the Payload Tactical Plan is submitted to the Payloads Office. Signature controlled changes by the Increment Lead and Manifest Lead can be made to the manifests up to launch minus 6-7 months when the inputs are baselined at the contractor implementation board. As Flown manifests are generated within a month of landing or following de-integration of hardware from the vehicle.
Fly-off plan	The fly-off plan is a database of all ISSMP-managed experiments in the current flight queue that tracks subject completion and also considers manifest requirements, baseline data collection (specifically on R+0) and crew time for planning purposes. The database allows for a look across increments and experiments to evaluate several performance metrics.
Ground analog	Earth-based simulations used to imitate a designated set of physiological or other conditions encountered by humans in space (i.e., isolation, head-ward fluid shifts, and musculoskeletal unloading).
Hardware	The term hardware may refer to all project deliverables such as hardware, software, and firmware as it applies to JPR 7150.2.
HRP Quarterly Inputs	Inputs to quarterly reports typically include accomplishments for the quarter, future planned accomplishments for the next quarter, updated ISSMP risk status, ISSMP fly-off plan updates; HRP Integrated Master Schedule (IMS) schedule updates, and project watch items.
I-x (increment minus)	The “I-x” notation refers to “x” number of months before the start of an ISS increment. The notation always refers to months unless specifically stated that it is days, years, or some other unit.
Increment Closeout	Each experiment flown in a given increment delivers a 30-day Postflight Operational Accomplishments input to ISSMP that are consolidated into one submittal, the ISSMP 30-day Postflight Facility Operational Accomplishments Report. The report highlights the facility suite of hardware that supports ISSMP research and a synopsis of research flown on ISS during that increment by HRP. Also compiled is a list of Lessons Learned that is applicable for implementation both internally to ISSMP and externally to ISSMP interfaces. Lessons learned are captured throughout each increment and a summary report of all lessons learned is developed. The lessons are discussed with the ISSMP team during the transition to the next increment. Lessons applicable to the ISS Program are pulled out and shall be transmitted to the Research Integration Office after being presented at the ISSMP CCB. The closeout of an increment results in the following products: One Postflight Operational Accomplishments report, 1 compilation of lessons learned, and 1 Postflight Summary report.
Increment Complement	The Increment Complement is the suite of human life science experiments that the crewmembers on-board ISS during the timeframe defined by increment boundaries have agreed to participate in following an informed consent briefing.

Word/Phrase	Definition
Increment Crews Trained	Crew Training is to be completed for each increment through the implementation of the approved Crew Training Strategy. Prior to beginning instructor certification a Training Readiness Review (TRR) shall be conducted. The TDO shall complete (8) TRRs for the PoP. Instructors must be certified to teach courses, and a Payload Training Dry Run (PTDR) is conducted for each course or new instructor to prepare the instructor and lesson materials for certification. The PTDR is the ISS Program certification event for the instructor and lesson material and is conducted by the POIC Operations Lead with a crewmember or crew surrogate. A practice session for the PTDR may be conducted and is called an Internal Training Dry Run (ITDR). The TDO shall provide a total of twenty two (22) ITDRs & PTDRs for the PoP. The lesson plans and courseware for a particular experiment/hardware are baselined through the POIC Training Data Set by a Payload Lesson Change Request (PLCR). The TDO shall deliver ten (10) PLCRs for the PoP. Crew training begins with scheduling and execution of generic rack and sub-rack hardware training often before the official crew complements are baselined by the ISS Program. Once the complements are baselined, previously flown experiments and new experiments are trained. Training schedules are posted weekly. During the training, the Training Coordinator monitors the session and documents crewmember concerns, actions, and any other issues that might affect on-orbit operations. Any relevant issues are passed on to the increment team during periodic increment tag-ups. The TDO shall plan and execute one hundred ten (110) crew training sessions for the PoP.
Increment Operations Inputs Provided	Inputs for operational products developed to enable on-orbit operations, including review of Ground Rules & Constraints (GR&C), Payload Activity Requirements Document(PARD)/Payload Planning Overviews (PPO), Payload Regulations, Engineering Change Request (ECR), Team Integrated Review (TIR)s, Just In Time (JIT)s, etc.
Increment Operations Planned	Increment operations are planned using a crew time rollup spreadsheet containing resource requirements for every ISSMP activity needed to implement the increment. The crew time rollup is used for initial Research and Planning Working Group (RPWG) increment baseline and is an Integrated Increment Requirements Document (IIRD) appendix that feeds the IIRD main volume and Increment Data Requirements Document (IDRD) Payload Tactical Plan (PTP) tables. The TDO shall provide two (2) crew time rollups for the PoP. To ensure International Partner requests for HRF hardware are incorporated into increment planning, the TDO shall participate in (1) International Partner (IP) meetings for the PoP and (2) Payload Operations and Integration Working Group (POIWG) meeting where ISSMP Increments are introduced.

Word/Phrase	Definition
Increment Real-time Operations Conducted	Increment Real-time Operations Conducted begins when the crewmembers for the increment are launched to ISS. Trained GSP monitor ISSMP crew activities from console positions in the JSC Telescience Support Center (TSC) to assist with answers to crew questions resolve anomalies, monitor telemetry data, and command and control the Human Research Facility Rack hardware. Some activities do not require active monitoring and may not occur during the time ISSMP personnel are on console. However, these activities require product inputs and review and assessment of schedule changes. The capacity for one thousand six hundred and fifty (1650) non-console supported sessions shall be provided for the PoP, with each activity assessment defined as a 1.5 hour review in the office environment. The capacity for two hundred fifty (250) console sessions shall be provided for the PoP, with each session defined as a single 8-hour shift on console. In addition to the on-console activities, ISSMP personnel work implementation changes and re-plan to accommodate crew requests, changes driven by experiment teams, and re-plans driven by the ISS Program off console. Changes are implemented by developing and submitting an electronic Operations Change Request (OCR) in a Marshall Space Flight Center (MSFC) Payload Operation Integration Function (POIF) provided software tool. The capacity for one hundred twenty (120) Operations Change Requests (OCRs) shall be provided for the PoP. In addition to implementation changes, ISSMP Operations shall provide the capacity to resolve eighteen (18) payload anomalies. For each anomaly, one (1) payload anomaly report (PAR) shall be developed. PAR HRF-HW-31 "Failure to Initialize Ultrasound Scanhead" shall be used as a benchmark for the report.

Word/Phrase	Definition
Increment Real-time Operations Prepared	Increment Real-time Operations Prepared captures the work to develop and verify the operational products required to implement real-time ops for a specific Increment. Products developed include crew operating procedures, detailed activity models used to timeline on-orbit activities, and real-time data processing requirements. Each crew procedure is one nominal, contingency, or malfunction procedure used for an individual session. If an experiment has multiple unique sessions, there could be multiple nominal procedures written. New procedures and Operations Nomenclature are developed for each new experiment identified in the ISSMP Flight Queue Master List. Once the procedure is written, it is verified using a "tabletop" run through with available hardware or using the high fidelity racks in JSC Building 9. The final procedures are formatted in a Procedure Authoring Tool (PAT) provided by MSFC POIF and submitted for baseline using a POIF process. Eighteen (18) new procedures shall be developed and submitted for baseline for the PoP. Detailed activity models are developed in a MSFC POIF provided software tool with the initial delivery at I-8 and the final delivery at I-5. A coordination meeting will be attended to analyze the Limited Life Item List (LLIL) report each increment to ensure ISSMP on-orbit activities have accounted for expiring hardware. To prepare for Increment real-time operations four (4) sets of Ground Rules and Constraints (GR&C) and Flight Rules/Payload Regulations shall be submitted each Increment. The integrated products for new experiments shall also be verified with the POIC prior to on-orbit execution. The TDO shall participate in eight (8) Just-In Time (JIT) and/or Team Integrated Review (TIR) meetings to represent ISSMP interests for the PoP. Integrated data requirements for ISSMP experiments are integrated into an increment Data Requirements Document (DRD), tested, and verified. Information is also sent to the POIC in the form of a Ground Data Services Data Set. Once the ground system is in place and testing is complete, a Certification of Flight Readiness (CoFR) report is provided. The TDO shall deliver two (2) DRD, two (2) Ground Data Services (GDS) Data Set (Requirements input into Payload Data Library (PDL) pertaining to voice loops and telemetry rates), two (2) CoFR Reports, two (2) data verification tests, and two (2) verified Life Science Data Systems (LSDS). An Increment Status Briefing with each crewmember is held right before each crewmember launches to communicate specific ISSMP implementation details. The TDO shall deliver material for four (4) crew briefings for the PoP. In addition to product development, the TDO shall provide one (1) certified Ground Support Team each Increment. To prepare the Ground Support Personnel (GSP), the TDO shall provide a capacity to conduct nine (9) mini-simulations for the PoP.

Word/Phrase	Definition
Increment Science Complement Planned	Increment planning is the definition, development, and submittal of ISSMP increment mission resource requirements to the ISS Payloads Research Integration Office (RIO). The planning data is developed based on initial planning parameters provided to the RIO (e.g., launch dates, crew, and crew time and up-mass expectations). The data is entered into Payload Tactical Plan (PTP) tables and submitted to the RIO along with experiment summaries and payload priority recommendations. All payload inputs are integrated by the Payloads RIO and reviewed for accuracy in an RIO rack and stack spreadsheet. Complement scenarios are developed during the planning process and include all HRP and IP experiments submitted to the Research Integration Control Board for baseline. One (1) initial PTP table, one (1) set of experiment two page summaries, five (5) updates to the PTP tables, five (5) updates to the experiment summaries, and no more than twelve (12) complement scenarios shall be provided to the RIO for each increment planned.
Increment Transitions Completed	To accomplish the transition between Increment Teams at the conclusion of one 6-month Increment to the beginning of the next, the subtask shall develop products to document the open work remaining, the status of all anomalies, and any significant process changes. Two (2) transition meetings per fiscal year shall be held where these products will be disclosed. At the Transition meeting, the TDO shall deliver one (1) summary of HRF Rack usage based off the Rack Tracking Log that is kept during the Increment. The information presented in the transition meeting will be compiled from data that is collected during the execution of the Increment. Upon the conclusion of an Increment or a crewmember's in-flight component, the TDO shall participate in six (6) crew debriefs per fiscal year and disseminates relevant information back to the ISSMP community as it pertains to in-flight and training products. One (1) post-flight product archive shall be provided for reference and shall contain on-orbit facility data, Operational Change Requests (OCRs), in-flight session packages, and a post-flight utilization report for each increment.
In-Flight Activity Completed (Simple, Moderate, Complex)	A full on-orbit session shall include 1 pre-coordination meeting, 1 timeline review, 1 procedures review, 1 on-console monitoring session, and 1 de-brief meeting. Some console sessions will consist of a handover to a second shift to close-out a session or perform data management activities which will not include all pre and post session coordination. Other on-orbit sessions may not include pre and post coordination for example, support for MED B requirements. Sessions can be categorized as simple, moderate or complex dependent on the level of coordination and software support.
Informed Consent Briefing	An Informed Consent Briefing (ICB) shall be conducted for each prime crewmember and their backup (up to three (3) per Increment). Crewmembers will be combined into one ICB as their schedule allows, but only one delta briefing per crewmember shall be planned, including updates to the applicable IRBs to incorporate and communicate changes occurring after the first briefing.

Word/Phrase	Definition
IP BDC Coordination	International Partner (IP) BDC coordination shall include no more than 13 non-ISSMP managed long-duration experiments per ISS crewmember. Coordination for each experiment includes the maintenance of a Mini-Experiment Document (ED), inclusion in at least one complement scenario, scheduling of the informed consent briefing, reviewing and scheduling an initial Test Readiness Review, inclusion in the Baseline Data Collection and Data Sharing Plans, and scheduling BDC. Product development in support of IP science will be limited to those developed for ISSMP sponsored science with the exception of the Mini-ED. Specialized support such as badging and escorting of IP personnel or shipping of IP hardware shall be provided in support of direct return post-flight. The TDO shall provide reviews of Change Evaluation Forms made by the IPs that require a man-in-the-loop shall be evaluated from a BDC perspective.
ISSMP GSP Teams Trained	Ground Support Personnel (GSP) are trained for each ISSMP increment to provide ground support for on-orbit operations. For new GSP, training consists of instructor led classes, self-study classes, On-the-Job-Training (OJT) sessions, mini-simulations, Table Top Exercises, console training sessions, and simulations. GSP classes are instructed and coordinated by ISSMP Training and Operations personnel. A mini-simulation is focused on position-specific training and cross training and is generally limited in scope and generally limited to less than four (4) hours with internal participants only. Full Simulations are the same as mini-simulations but for a time of greater than four hours, with expanded scope such as hardware interfaces, external roles and responsibilities, data and communication paths and flight-like timeline execution; participants may include external parties. GSP Exercises are less than four hours and provide practice of a subset of required skills learned in the GSP Training Sessions. The TDO shall plan forty (40) GSP training sessions, four (4) GSP Exercises. The TDO shall also provide twelve (12) updated GSP class lesson plans per fiscal year. The number of training classes and sessions above assumes no more than three new GSP. For current and qualified GSP, training consists of performing console duties for operations. Simulations serve as training for the integration of all required GSP skills. Increment GSP training is completed once all required GSP for the increment are considered certified and the certification list is delivered to the POIC GSP Training Coordinator.
ISSMP Master Schedules	Integrated Master Schedules are generated for all experiments and increments managed by ISSMP. They are housed on the ISSMP SharePoint site and are part of the monthly deliverable referred to as the "Blue Book".
ISSMP Flight Queue Master List	The official list of projects and experiments to be implemented by the ISS Medical Project. Each experiment's first and last increment for inflight operations shall be captured here and controlled by the ISSMP CCB.
ISS Increment	An Increment is defined as a 6 months period of time on ISS where two sets of 3 person crews are on board station, launched each via their respective Soyuz. For example, Increment 29/30 is comprised of the crew launched via 28-Soyuz and the crew launched via 29-Soyuz. In-flight operations for Increment 29/30 starts with the undocking of 26-Soyuz and ends with 28-Soyuz return to Earth. The 29-Soyuz crew carries over into the next Increment (Inc. 31/32 in this case).

Word/Phrase	Definition
ISS Increment Resource Requirement Sets	Two requirements documents developed during initial increment planning make up the resource requirement set and define the requirements necessary to implement ISSMP objectives. The documents include the Integrated Increment Requirements Document (IIRD) and the ISS Research Integration Office's (RIO) Increment Definition Requirements Document (IDRD) Annex 5 Payload Tactical Plan (PTP) resource tables. The IIRD is an ISSMP controlled and managed document generated by the Increment Manager that reflect the requirements documented in the PTP tables, which are controlled and managed by the ISS Program. Once generated the Increment Lead generates the document revisions per CCB directives.
ITS-CRC	Institute for Translational Sciences – Clinical Research Center: National Institutes of Health (NIH) supported bed rest facility.
JSC Export Composite Report	Report generated after approval through the JSC Export Relational Database.
Joint Commission—Ambulatory Healthcare Standards	Joint Commission standards are based upon consensus, performance-based metrics that are patient-focused and address the key functions that healthcare organizations must do well in order to achieve excellent outcomes of care.
L-x (Launch minus)	The "L-x" notation refers to "x" number of months before the launch of a vehicle going to ISS. The notation always refers to months unless specifically stated that it is days, years, or some other unit.
Launch Site Package	The launch site package covers logistics and cargo reviews, testing, schedule negotiation, and review of Program documentation. The package will consist of completing logistics and shipping for 6 flights, completing turnover and supporting cargo reviews for 6 flights, 11 schedule review inputs, and 6 CoFR inputs for the Fiscal Year.
Limited Life Inventory Tracking and Assessment	Limited life Inventory (LLI) tracking is performed as a normal part of increment planning and implementation. An Excel database is used to track hardware and identify limited life due dates so that decisions can be made on when to launch resupply and perform maintenance. A LLI audit is conducted every 6 months for the three increments in planning stages with minutes and actions documented. Closure of actions is typically submittal of manifest change requests to the CIB or CCB, as appropriate.
Logistics Plan	Experiments and facility hardware typically require cables and other small items (for example but not limited to: blood and urine collection hardware, electrodes) to complete inflight activities. These items, usually packaged in a kit, shall be restocked using a logistics plan. The plan consists of manifest inputs to launch resupply and return used kits if needed. As launch dates change and crewmembers accept or decline participation, the logistics plan will be updated and manifests changed. Logistics plan also includes increment preparations such as Payload Summary inputs and 3 pager reviews. Also included is any tracking of experiment specific information such as session dates, durations, and hardware usage.

Word/Phrase	Definition
Major Event	Major Event is defined as an on-orbit or ground anomaly requiring the reconfiguration or rework of the associated hardware or support equipment to facilitate troubleshooting and resolution. This event is designated as a high priority, necessitating a work stoppage until the anomaly is resolved. Duration of efforts must extend beyond two scheduled work shifts, and may require the extensive support of entities outside of the contractor's sustaining team.
Minor Event	Minor Event is defined as an event that requires minimal resource allocation, can be resolved with minimal outside support, and does not span more than 5 work days.
Monthly Document Reviews Completed	Review of documents needed to support Flight Projects experiments. These include all CRs, BDC Plans, Data Sharing Plans, Increment contingency exercises, reviews and email review of documents such as the Launch Manifest.
On-Orbit Sessions	An on-orbit session will include 1 pre-coordination meeting, 1 timeline review, 1 procedures review, 1 on-console support session, and 1 de-brief meeting.
Operations Assessment	An Operations Assessment (OA) is the first touch-point in the Operations Evaluation (OE) process. The Operations Evaluation is designed to get external stakeholder input early in the development of the experiment's products and periodically as the experiment becomes more mature and products are being developed for the implementation teams within the ISS Program and Payloads office. External input and changes to the products should naturally decrease through the progression of the process due to early identification of and resolution of concerns. The kick-off of an OA is upon select for flight by HRP. Coordination of the scheduling the OA meeting, the attendees and products presented, actions, and minutes is managed by the ISSMP PIM. The Payload developer, in this case ISSMP Flight Projects, communicates a high level overview of the experiment and the strategic plan for implementation. The following are candidate areas of discussion, depending on experiment complexity and breadth, at an OA: Operations concept, Activity flows, Training concepts, Procedure concepts, Proposed Operations Nomenclatures, Potential Payload Regulations, Potential Ground Rules & Constraints, Resource Constraints, and Station Support Hardware needed for implementation, Topology Impacts, Human Factors Integration considerations, and Safety Considerations. Minutes and actions will be taken by the Increment Lead and maintained through the subsequent touch-points for the experiment as its products are developed for implementation.
Pre and Post only Experiment	An approved research experiment with no inflight component. These experiments require crew time prior to and after flight.
Preflight BDC Execution	To execute preflight BDC sessions that are outlined in the BDC plan, BDC shall be scheduled with the Increment Training Integrator and experiment team, BDC constraints and reminders shall be communicated to crewmembers, and medical monitoring shall be arranged per JSC IRB guidelines. Sessions shall be tracked 'as-run' in the BDC status sheet and distributed after each crew rotation in the US. Approved data requests from HH&P/Flight Surgeons shall be distributed to the experiments.
Principal Investigator (PI)	Primary point of contact and primary scientist responsible for a research study and the science decisions for that study.

Word/Phrase	Definition
Project Documentation	Project documentation consists of configuration controlled requirements, data, or product specifications necessary to implement ISSMP objectives over multiple increments per fiscal year. Project documents and changes shall be published electronically to a document library website that is accessible by all members of the project. The PoP costs shall include 100 published documents (or changes).
Project Management and Status Reporting Completed	Project management consists of planning, organizing, tasking, and controlling resources, procedures and protocols to accomplish ISSMP mission Deliverables List. Monthly Deliverables List consists of reporting, financial estimates, weekly inputs, and trainings not covered in other Deliverables List.
Postflight BDC Execution and Increment Closeout	Postflight BDC execution is the execution of sessions outlined in the BDC plan, scheduled with the Mission Integration Coordinator and/or Increment Training Integrator and experiment team. BDC constraints and reminders shall be communicated to crewmembers, and medical monitoring shall be arranged per JSC IRB guidelines. Sessions shall be tracked 'as-run' in the BDC status sheet and it shall be archived after BDC is complete. Approved data requests from HH&P/Flight Surgeons shall be distributed to the experiments for all data available from LSAH 30 days postflight. Data collected late by HH&P will be distributed to experiments according to the DSP when available, but any after 30 days postflight will not hold up the closure of this deliverable.
Postflight BDC Preparation	Developing postflight BDC schedules in conjunction with HH&P/Flight Surgeons and performing the work to ensure that facilities for testing and ISSMP personnel are ready for the execution of postflight BDC both at Johnson Space Center (JSC) and in Star City, Russia as necessary for contingency landing scenarios, including the delivery of one (1) iteration of each request for Letter of Invitation, Visas, and housing for travelers and sample return to JSC in a contingency landing scenario per postflight period. Descriptions of returning HRP in-flight samples on Soyuz are communicated to the NASA representative at the landing site. Postflight BDC to be executed on the crew plane during direct return is negotiated with the attending crew surgeon. Postflight BDC requirements shall be integrated with the Mission Integration Coordinator's medical requirements into the crew schedule for the first two weeks postflight. Postflight requirements thereafter shall be submitted to the Increment Training Integrator.
Procurements	Procurements for experiment resupply, hardware, and software are needed to meet ISSMP objectives.
Protocol	The method by which tests are performed.
Safety Package	A Safety Package is developed for review and approval by the Payload Safety Review Panel and includes experiments manifested for every vehicle in an increment. The contractor will deliver six (6) Flight Safety Packages consisting of experiment-level presentation material and a safety action tracking status for Phase III Safety Reviews for each launch vehicle in an increment. The contractor will deliver three (3) experiment Flight Safety Packages consisting of presentation material and safety action tracking for Phase I/II/III for each experiment.

Word/Phrase	Definition
Science Operations and Preflight BDC Preparation	Performing the work required to secure crewmember participation in ISSMP and IP experiments, creating planning documents for BDC and Data Sharing, prepping all NASA BDC facilities and ensuring that all safety and logistical needs have been fulfilled for BDC hardware and personnel. This includes the development of one (1) Institutional Review Board (IRB) package to be provided to the JSC IRB, HRMRB, and IP IRBs, one (1) BDC Plan, Data Sharing Plan, and BDC Status Spreadsheet per crewmember with one (1) planned revision to each product. Crew participation and informed consent forms shall be obtained and distributed, and preflight BDC requirements shall be submitted per crew participation to the Increment Training Integrator. Export Controlled Science Symposium materials shall be provided to the Lead Increment Scientist and inputs shall be made to two (2) TRR packages. Preflight
Software Integration Support Provided	Software Integration support outlines support provided by Flight Projects outside of Version Description Document (VDD) and Payload Display Review Team (PDRT)/Integrated Display and Graphics Standards (IDAGS). This includes Computer Resource Control Panel (CRCP) meetings, SSC interface testing, TRRs, etc.
Software Package	A Software Package will consist of one (1) update to software documentation, representation of ISSMP at Program-level software boards and/or meetings, one (1) update to Common Software, two (2) software upgrade certifications, and two (2) Command and Data Handling data set updates per Fiscal Year.
Stage	Covers the span between the launch of a payload on a vehicle, its transfer to the ISS, and its subsequent return to Earth on a later mission. A stage is usually within an increment. Some stages may cross increments.
Study	The term used to define the sum total of all protocols performed on a specified number of grouped subjects (N) as outlined in the Integrated Protocol Document (IPD); formerly referred to as campaign.
Systems Engineering Dataset	The Systems Engineering dataset delivered will consist of a total of one (1) Interface Control Document (ICD) update, one (1) verification submittal for new payload, seven (7) verification submittals for reflown hardware, no (0) exception or Tailoring / Interpretation Agreements (TIA), two (2) stage assessment (Requirements Change Assessment Reports (RCAR) per hardware system on ISS) and nine (9) Re-Verification Memos/updates. The contractor will also assess and respond to fifty (50) Preliminary Interface Revision Notice (PIRNs) or Change Requests (CRs) through the following boards: ISS Pressurized PIRN Team Review, ISS Software PIRN Team Review, ISS Payload Control board (PCB), and Flight Activities Control board (FACB). The contractor will provide eleven (11) verification status reports and one (1) tracking tool in a database format to track requirements and verification closures for all ISSMP payloads listed on the ISSMP Launch & Experiment Manifest for CoFR submittals.
Test Package	A Test Package will consist of supporting up to 5 tests which can include software build, console support, procedure validation, and anomaly troubleshooting.

Word/Phrase	Definition
Tier 1 Delivery	Manifest or task transition driven delivery of existing inventory requiring low-level processing. Low-level processing is defined as an effort not to exceed 40 hours of dedicated labor. Tier 1 Flight Delivery assumes no manipulation of existing certification/verification data or the creation of additional certification/verification data. Tasks are limited to hardware retrieval and inspection, task transition document closure, minor project engineering and anomaly resolution tasks.
Tier 2 Delivery	Manifest or EHS transition driven delivery of existing inventory requiring mid-level processing. Tasks typically include hardware retrieval, inspection, Pre-Delivery Acceptance (PDA)/Pre-Installation Acceptance (PIA), project engineering tasks and the minor manipulation of certification/verification data. Minor manipulation is defined as effort not to exceed 120 hours of dedicated Project Engineering labor. Examples of minor manipulation include source documentation retrieval, minor hardware assembly, re-kitting of certified items, cleaning, PDA, hardware inspection to released drawing, logistic planning and minor GCAR updates.

2. Acronyms and Abbreviations

The list of Acronyms and Abbreviations is available in Attachment J-25.

3. Applicable Documents

The list of Applicable documents is available in Attachment J-1.

4. General

The Contractor shall ensure that all personnel assigned and utilized for performance of this contract possess all licenses, training, registrations, certifications, and certificates required by NASA Headquarters and JSC, as well as Federal, State, and local governments. The Contractor shall identify and document all certifications, licenses, registrations, and training requirements for each staff position. The Contractor shall provide this information and the status of each requirement as defined in the DRDs.

Attachment L – 3 – 1 TO-RFP-01 – Contract Management and Administration

1. **Title of Effort: 1.0 Contract Management and Administration**
2. **Date of Request: October 31, 2014**
3. **Statement of Work Task Description:**

The work entailed within this task order provides the basic business management infrastructure to support the implementation of work across the Human Health and Performance Contract (HHPC). The contractor provides staff and maintains systems for developing annual Task/Delivery Orders, financial reporting, managing data, property management, subcontract management, management of teammates, procurement, safety & health program, quality management system, environmental management system, personnel management, property management, and security.

4. **Period of Performance: Fiscal Year 16 – 12 month Period of Performance**
5. **Subtasks**

Subtask 1.1 Program Management and Contract Support

The work entailed within this task order provides the basic business management infrastructure to support contract work. This Task Order contains multiple subtasks with functions of work divided into work packages to provide visibility in cost by function.

The Contract Support Office (CSO) performs activities for contract changes, contract awards program, program management training program lead efforts, and lean leadership facilitation. Operations activities for the areas of materials, offsite facilities, other direct charges, subcontracts, and major teammates are performed.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
1.1		**Program Management (PM) and Contract Support**	
101		**Program and Department Management**	

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
101	1	The contractor shall staff a program management office to provide: 1) Leadership, vision, and general contract oversight 2) Performance & management metrics 3) Deliverable submissions 4) Program/Contract Management Reviews 5) Program Risk Monitoring 6) Customer Satisfaction surveys, analysis, and corrective actions 7) Organizational Conflict of Interest (OCI) Avoidance Plan implementation 8) Small Business and Financial goals 9) Recruiting to ensure overall contract staffing	2) Metrics as presented at regularly scheduled Program Management Review (PMR) Quarterly 3) Self-Evaluation at End of each Award Fee period 3,7,8) DRDs as req'd
101	2	The contractor shall maintain a comprehensive Management Plan.	DRD as req'd
101	3	The contractor shall develop, maintain, and deliver in electronic form all specifications, process models, design models, work instructions, Standard Operating Procedures, and guides associated with work on this contract.	End of FY following contract award; updates as req'd
101	4	The contractor's department management shall ensure cross-contract integration, provide functional oversight of major departments, and assist in developing cooperative approaches to projects, corrective actions and lessons learned. Department management shall also ensure proper staffing levels, develop succession plans, and provide for professional growth of department employees.	Special topics and metrics as presented at regularly scheduled PMR as req'd Self-Evaluation at End of each Award Fee Period
102		**Contract and Process Change Activities**	
102	1	The contractor shall provide contract change activities for RFAs and TCRs.	Up to 15 RFAs and 10 TCRs per month
102	2	The contractor shall provide contract change status reports.	One per week
102	3	The contractor shall provide project management workshops.	Up to one workshop per year
102	4	The contractor shall provide lean leadership events.	Up to Two lean events per year

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
102	5	The contractor shall provide maintenance activities for the Contract Management electronic portal tool	MMR to PMO as req'd

Subtask 1.2 Contract Business Operations, Products and Services

Offsite Facilities and Supplies:

This subtask includes operations activities for the areas of: materials, offsite facilities, other direct charges, subcontracts, and major teammates.

Budget Development and Analysis, Financial Reporting:

The contractor prepares and analyzes the 533; works with Cost Account Managers (CAMS) to establish/manage project baselines via Task Deliver Orders (TDOs), Request for Amendments (RFAs), Technical Change Requests (TCRs) and Baseline Change Requests (BCR); supports the monthly estimate collection process; prepares/analyzes team member budgets, prepares variances, unfilled orders reports, Self-Evaluations and Standard Labor Category (SLC) analysis. The contractor will maintain all financial tools to meet contractual requirements; troubleshoot and resolve issues related to financial tools and ensure financial reporting deliveries.

Travel Management

The contractor audits and processes employee travel authorizations and expense reports to ensure compliance with government standards.

Logistics, Property and Bond Services:

The contractor manages/controls all Government Property (GP), off-site bond Flight facility, export control, support annual inventory of GP, support of outbound Installation Accountable property of JF290, maintain control of GP work instructions, mail service and reporting including quarterly DD1149 transfer of GP , Work-In-Progress (WIP), monthly Contractor-Held Asset Tracking System (CHATS) cost reconciliation, and the annual NF1018 and GP summary inventory.

Contracts, Subcontracts and Procurement:

The contractor will perform purchasing of supplies and services as well as reviewing/processing contract modifications. In addition, the contractor will administer all subcontracts from placement through subcontract close out and expedite open purchase orders to ensure timely delivery. Small Business Liaison activities include review of small business certifications, submission of small business reporting, as well as participating in small business outreach activities, including participating on the JSC Prime Contractors Roundtable. GSA vehicle monitoring is achieved by submitting mileage logs on a monthly

basis and monitoring insurance and driver requirements to ensure minimums are maintained in accordance with the contract.

The contractor develops and maintains all financial tools to meet customer and contractual needs; resolve issues and/or improve effectiveness and efficiency of the financial tool and ensure data security.

Off-site IT Support

The contractor provides a full range of offsite computing services to support core contract requirements and support organizations. Services include network operations, infrastructure services, Web collaboration tools and support, application development, contract tools development and support, information assurance and security services, desktop support and helpdesk operations.

Environmental Health and Safety:

The contractor provides for the well-being of the HHPC team's workforce, both on Government property and offsite, through strict adherence to the HHPC Safety and Health Plan, OSHA, EPA, NASA, IATA, Texas, and City of Houston safety, health, and environmental requirements. The contractor will develop and maintain a comprehensive set of procedures which guide employees and management through the complex realm of EH&S compliance.

The contractor advises on the appropriate measures for working safely in a multidisciplinary environment that includes engineering, laboratory research, and the human testing environment. The contractor provides oversight of the work environment to identify and control biological, physical, ergonomic, and chemical hazards.

Quality Management System:

The contractor is responsible for maintaining an approved Quality Management System to the ISO-9001 and the applicable AS9100 standards

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
1.2		**Contract Business Operations Products and Services**	
103		**Offsite Facilities and Supplies**	
103	1	The contractor shall provide procurement of office supplies for the contract for both onsite and offsite.	MMR to PMO as Req'd
103	2	The contractor shall provide management and operation of offsite facilities.	MMR to PMO as Req'd
103	3	The contractor shall provide GSA vehicle operation and maintenance and coordination.	MMR to PMO as Req'd
103	4	The contractor shall maintain and operate the leased facilities.	MMR to PMO as Req'd

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
103	5	The contractor shall provide communication and internet procurement activities.	MMR to PMO as Req'd
103	6	The contractor shall provide budgeting & financial reporting & planning, export control & safety, and other miscellaneous activities.	MMR to PMO as Req'd
103	7	The contractor shall provide procurement of supplies and other materials.	MMR to PMO as Req'd
104		**Budget Development and Analysis, Financial Reporting**	
104	1	The contractor shall generate the contract 533 report.	Monthly and Quarterly Reports
104	2	The contractor shall generate the contract 533 variance reports.	Variance Reports as req'd
104	3	The contractor shall generate the contract self-evaluation.	PoP report
104	4	The contractor shall generate the contract IDIQ values for baseline changes.	Quarterly Report
104	5	The contractor shall generate the contract LOE modifications for fee.	PoP Report
104	6	The contractor shall generate the contract WIP report.	Monthly Report
104	7	The contractor shall generate the contract unfilled orders report.	Monthly Report
104	8	The contractor shall generate the contract team member budgets.	MMR to PMO as req'd
104	9	The contractor shall generate the contract TDO report.	Weekly Report
104	10	The contractor shall generate the contract baseline changes.	MMR to PMO monthly
104	11	The contractor shall maintain a Work Breakdown Structure and Work Breakdown Structure Dictionary.	As req'd
104	12	The contractor shall maintain contract related financial tools.	MMR to PMO as req'd
105		**Logistics, Property, and Bond Services**	
105	1	The contractor shall provide control and support Government Property (GP), equipment, and materials	MMR to PMO as req'd
105	2	The contractor shall provide shipping and receiving activities.	MMR to PMO as req'd
105	3	The contractor shall provide management, control and reporting of tagged equipment	MMR to PMO as req'd NASA Reports as req'd
105	4	The contractor shall provide management, control receipt/issue and reporting of bond flight inventory	MMR to PMO as req'd

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
105	5	The contractor shall provide CHATS submission.	CHATS monthly
105	6	The contractor shall generate the DD1149 Transfer of Property, Direct and Flight Material.	Report as req'd
105	7	The contractor shall generate the annual NF1018 submission.	Annual Report
105	8	The contractor shall complete an inventory of non GFE off-site equipment/materials and report summary to the Government.	Annual Report
105	9	The contractor shall generate quarterly DD1149 transfer of consumables and flight material.	Quarterly Report
105	10	The contractor shall provide for the shipment of HAZMAT and Dangerous Goods.	MMR to PMO as req'd
105	11	The contractor shall provide export control for contract related activities.	MMR to PMO as req'd
106		**Contracts, Subcontracts and Procurement**	
106	1	The contractor shall provide procurement of subcontracted services as needed to support the contract.	MMR to PMO as req'd
106	2	The contractor shall provide management and administration of subcontracts.	MMR to PMO as req'd
106	3	The contractor shall provide contract administration activities and communications as needed to support the contract.	MMR to PMO as req'd
106	4	The contractor shall provide small business support and reporting.	SSRs, ISRs MMR to PMO as req'd
106	5	The contractor shall purchase materials and services from outside vendors as needed to support the contract.	MMR to PMO as req'd
106	6	The contractor shall maintain and submit GSA vehicle mileage logs.	GSA Mileage Report monthy
107		**Off-site IT Support**	
107	1	The contractor shall provide infrastructure updates and enhancements as determined by advances in technology, growth requirements and equipment end-of-life	MMR to PMO as req'd
107	2	The contractor shall provide application maintenance services for contract management(including financial) tools	MMR to PMO as req'd
107	3	The contractor shall provide offsite desktop support services	MMR to PMO as req'd
107	4	The contractor shall provide offsite helpdesk support services	MMR to PMO as req'd

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
107	5	The contractor shall maintain a formal information security program to ensure the confidentiality, integrity and availability of offsite systems, data and information	MMR to PMO as req'd
107	6	The contractor shall provide and support offsite web-based collaboration tools and solutions	MMR to PMO as req'd
107	7	The contractor shall utilize offsite environment cyber-security tools and techniques to maintain security of offsite systems and leverage real-time monitoring of the Contractor Security Operations Center	MMR to PMO as req'd
107	8	The contractor shall maintain formal cyber incident response capability and interface with the appropriate JSC personnel on activities as required	MMR to PMO as req'd
108		**Environmental Health and Safety**	
108	1	The contractor shall compile safety and health metrics and reports per the HHPC Safety and Health Plan	Per HHPC Safety and Health Plan and DRD# HHPC-SMA-03
108	2	The contractor shall compile and submit an Affirmative Procurement Report of environmentally-preferred materials purchased	Annual Report
108	3	The contractor will report and investigate mishaps on NASA property and on contractor property	24 hours after notice of injury as req'd
108	4	The contractor shall compile an inventory report of all hazardous materials it has located on Government property	Quarterly and annual report
108	5	The contractor shall provide regular inspections and evaluation of work areas for hazards and accountability for implementation of corrective measures.	At least quarterly
108	6	The contractor will participate on Government safety and health committees (examples include JSC Biosafety Review Board, JSC HH&P Safety & Health Committee, JSC Contractor Safety Forum, JSC Contractor Affairs Safety Committee, JSC Safety Action Team, JSC Close Call Review Board, etc.)	As required
108	7	The contractor will maintain the appropriate licenses, permits, and certifications for applicable safety, health, and environmental regulations especially at offsite locations for work being conducted on behalf of the Government.	As req'd
108	8	The contractor shall provide sustaining and maintenance activities for the Safety Chem tool.	MMR to PMO as req'd

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
108	9	The contractor shall maintain a comprehensive Safety and Health Plan.	DRD as req'd
108	10	The contractor shall maintain a comprehensive Safety and Health Program to comply with the HHPC Safety and Health Plan	DRD as req'd
109		**Quality Management System**	
109	1	The contractor shall maintain a Quality Management System (QMS) and 3rd party (dual scope) certifications consistent with all aspects and requirements to the ISO-9001 and AS9100 Standards.	Per Contract Requirements
109	2	The contractor shall maintain a training program and learning management system with associated training records which tracks compliance training completion.	Per Management Direction

Subtask 1.3 Safety Reliability, Maintainability & Quality Assurance (SRM&QA)

The contractor is responsible for maintaining core competencies in safety, reliability, maintainability, quality assurance, quality engineering for all hardware and software contract deliverables; manage technical support across the contract; contribute to process improvement efforts; develop tools, training and process efficiencies; develop and maintain multiple SRM&QA plan deliverables (Systems Safety Program Plan, Quality Plan, Reliability and Maintainability Plan, Software Quality Assurance Plan); coordinate tasks associated with software and hardware quality compliance; oversee the contract Problem Reporting and Corrective Action (PRACA) program; oversee the contract Government and Industry Data Exchange Program (GIDEP); and develop contractor developed metrics used for NASA surveillance.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
1.3		**Safety, Reliability, Maintainability & Quality Assurance (SRM&QA)**	
110		**Systems (Hardware and Software) SRM&QA**	
110	1	The contractor shall review and price all contract TDOs and RFAs	Per Contract Requirements
110	2	The contractor shall perform day to day management of GFE/Payloads including System Safety, Reliability, Hardware and Software Quality, and EEE Parts	As req'd per DRD HHPC-SW-05, DRD HHPC-SMA-01,DRD HHPC-SMA-02
110	3	The contractor shall develop and implement performance and process metrics	As req'd per Per Contract Requirements

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List and Schedule
110	4	The contractor shall manage, and maintain the Software Assurance Program Plan, System Safety Program Plan, and the Reliability & Maintainability program	As req'd per DRD HHPC-SW-05
110	5	The contractor shall participate in the NASA/JSC GIDEP/ALERT (JARTS) System	As req'd per NPR8735.1 As req'd per DRD HHPC-SMA-05
110	6	The contractor shall perform systemic QE and QA related contract improvements and create and administer QE and QA specific training for hardware and software.	As req'd per Per Contract Requirements
110	7	The contractor shall provide routine S&MA support to the JSC Safety Review Panel (SRP) and the Payload Safety Review Panel (PSRP)	As req'd per SSP30599 (including CR 013547A) As req'd per SSP30309
110	8	The contractor shall attend System Problem Resolution Team (SPRT) reviews and meetings	As req'd per Per Customer Direction
110	9	The contractor shall participate in the NASA/JSC Problem Reporting and Corrective Action (PRACA) Program	As req'd per JSC28035 As req'd per SSP30234 As req'd per DRD HHPC-SMA-04
110	10	The contractor shall support all procurement quality activities including determination of Government Source Inspection (GSI) activities/application.	As req'd per Per Contract Requirements

Attachment L – 3 – 2 TO-RFP-02 – Flight Sustaining, Resupply, and Integration

1. **Title of Effort: 2.0 – Flight Sustaining, Resupply, and Integration**
2. **Date of Request: October 31, 2014**
3. **Statement of Work Task Description:**

Flight Sustaining, Resupply, and Integration is divided into the following subtasks:

- EHS and Radiation Management, Control, and Integration
- HMS Management, Control, and Integration
- EHS and Radiation Sustaining and Resupply
- HMS Sustaining and Resupply
- Special Tasks - RESERVED
- Countermeasure System (CMS) Software Development and Sustaining
- Radiation Assessment Detector (Rad Detector) Sustaining and Resupply
- Wet Lab Kit and Disposable Glove Bag
- Treadmill 2 (T2) Management and Control
- Treadmill 2 Sustaining
- International Space Station (ISS) Payload Support
- ISS Medical Project (ISSMP) Sustaining Engineering
- ISSMP Systems Engineering
- ISSMP Integration, Software, and Safety
- ISSMP Experiment Unique Equipment - RESERVED

Subtasks 1 – 11 cover EHS, HMS, Radiation, and T2 duties and tasks in support of sustaining, resupply, and integration of flight hardware for the International Space Station (ISS) Program.

Subtasks 12 - 15 cover support to the Human Research Program (HRP) ISS Medical Project (ISSMP).

This TDO assumes work to support up to eleven flights per year inclusive of up to four ISS crew rotations.

The Flight Sustaining, Resupply, and Integration Internal Schedule(s) capture the detailed development and implementation for each sub-element. The completion dates for many of the specific deliverables defined in the TDO subtasks are documented in detailed increment/project schedules. For Health Maintenance System (HMS), this integrated schedule is made up of a combination of MS Project (overview) and the web-based application, Handshake (detailed). The NASA Technical Monitor (TM) and the contractor Project Manager have the responsibility for approving the content of the Project/Subtask Schedule(s) and negotiating changes to deliverable schedules as long as the changes are within the activities of the TDO and do not affect the original planned resources for the affected deliverables. Copies of the Schedule(s) are maintained on the Crew Health Care System SharePoint.

Subtasks 12-15 use the ISSMP Launch & Experiment Manifest (LS-73004) to track ISS increment configurations, launch dates, and on-orbit facility sustaining engineering tasks. This document is controlled by the ISSMP Configuration Control Board (NASA) and captures the current ISSMP mission configurations. The deliverables in this TDO assume the flight configurations documented in the ISSMP Launch & Experiment Manifest (LS-73004) which is

available on the Technical Documentation and Information Center (TDIC) website (http://tdic.jsc.nasa.gov) and the ISSMP SharePoint site.

ISSMP schedules located on the ISSMP SharePoint site capture the detailed development and implementation milestones for each ISSMP sub-element. The completion dates for many of the specific deliverables defined in the TDO subtasks are documented in integrated increment schedules and detailed experiment/project schedules and are posted on the ISSMP Project Status SharePoint site.

This Task/Delivery Order will follow the SA-WI-014 hardware development process.
For software development, EA-WI-025 will be used as a guide in conjunction with SA-WI-014.

An overview of the CHeCS sub-systems (EHS, Radiation, HMS, and CMS) can be found in the Crew Health Care System (CHeCS) Medical HW Catalog.

Details regarding logistics and resupply can be found in the CHeCS Traffic Models and the ISS Sparing Assessment.
The contractor shall comply with all ISO 9001 standards and requirements including the compilation of Task Delivery Order (TDO) metrics. Customer satisfaction surveys will be conducted regularly to assure quality objectives are achieved. The contractor shall also comply with all NASA and OSHA safety standards.

4. Period of Performance:

The period of performance is Fiscal Year 16; 12-months

5. Subtasks:

2.1 – EHS and Radiation Management, Control, and Integration

Subtask Overview:

This subtask will provide supervisory and administrative activities required to manage work in the Environmental Health System (EHS) and Radiation System, as well as integration of EHS and Radiation hardware resupplied by this task order. The range of work covers oversight and integration of activities and duties performed in support of the other subtasks.

Major management and control activities include task order project management, issue resolution, status and reporting, maintenance of cost, oversight of procurement and shipping activities, property management, consolidated schedules, monthly reviews of cost, schedule, and technical status, configuration management, hardware and safety process development, risk assessment and mitigation strategies, management of task order travel, and special projects.

Hardware integration activities include support of SA-owned CHeCS EHS and Radiation System hardware at ISS Program meetings, responding to concerns regarding delivery and shipment of hardware for flight, obtaining approvals for integration products, representing SA-owned CHeCS EHS and Radiation System hardware at post-delivery meetings, supporting manifest meetings with data, summarizing returned hardware condition, and providing input from both science and hardware personnel for determining feasible delivery dates. Hardware Integration support of EHS and Radiation hardware is limited to SA-owned Government Furnished Equipment (GFE) hardware. Total Organic Carbon Analyzer (TOCA) is not included.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.1		EHS and Radiation Management, Control, and Integration	
201		EHS and Radiation Management & Control	
201	1	The contractor shall provide management oversight (e.g. issue resolution, risk assessment, resource conflict, status and reporting, travel management, and team meetings) for all EHS and Radiation subtasks within this Task Delivery Order (TDO).	Activity Report. Weekly.
201	2	The contractor shall provide an integrated schedule of the EHS and Radiation TDO subtask activities.	Schedule posted to NASA SharePoint website as *.pdf. Monthly.
201	3	The contractor shall maintain EHS and Radiation SharePoint web content associated with task order requirements.	Updated SharePoint website. Monthly.
201	4	The contractor shall perform Configuration Management of controlled items developed under this TDO in accordance with JSC 28330, *Space Life Sciences Directorate Configuration Control Management Plan.*	Activity Report. Weekly.
201	5	The contractor shall perform Export licensing assessment and classification for documents prepared for Technical Interchange Meetings (TIMs) conducted under this TDO.	Export classifications and documentation. Up to 4 per month.
201	6	The contractor shall populate and provide the technical accomplishments/upcoming work and open Problem Reporting and Corrective Action (PRACA) paper for customer's Technical, Cost, Schedule Report (TCSR) reporting.	Populated TCSR template. Quarterly.
201	7	The contractor shall compile and present an annual Lessons Learned presentation.	Presentation. August.
201	8	The contractor shall participate in forward planning with the Technical Monitor.	Memorandum with summary of anticipated work and cost estimates. March.
202		**EHS and Radiation Hardware Integration**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
202	1	The contractor shall negotiate with the Cargo Mission Contract (CMC) for delivery dates for each EHS and Radiation hardware item on the manifest.	Status reports that include conclusions, issues, risks and schedule updates. Documented in Activity Report.
202	2	The contractor shall respond to ISS Program, System Manager, and SA NASA Customers regarding EHS and Radiation flight hardware delivery/shipment concerns.	Up to 11 Pre-ship Statuses. Per Flight Schedule.
202	3	The contractor shall provide logistics activities and documentation, including issue and anomaly resolution, for delivery of EHS and Radiation flight hardware to the determined carrier location.	Up to 11 Flight Deliveries. Per Flight Schedule.
202	4	The contractor shall provide summary report of returned hardware status (e.g. expected verses actual returned hardware).	As-flown manifest report. Per Flight Schedule.
202	5	The contractor shall develop the CHeCS Internal Transfer List (CITL) for each flight with CHeCS subsystems manifest items.	CITL posting and inputs. Per Flight Schedule.
202	6	The contractor shall update and maintain the SA Integration SharePoint Site with current EHS, HMS, and Radiation Integration information.	SA Integration SharePoint Website Updates. Monthly.
202	7	The contractor shall participate in EHS and Radiation hardware and integration related meetings (e.g. SPRTs, etc.).	Meeting Participation. Up to 10 per month.
202	8	The contractor shall review and update the *Hardware Integration Standard Operating Procedure*, JSC-66132.	Documentation. As needed up to once during Fiscal Year.
202	9	The contractor shall provide logistics activities and documentation for up to 6 manifested EHS and Radiation items identified less than 16 weeks prior to launch.	Flight Hardware identified less than 16 weeks prior to launch. Up to 4 times during Fiscal Year.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
202	10	The contractor shall provide logistics activities and documentation, including issue and anomaly resolution, for delivery of 49 Packet Assembly, Petri Dish and 12 Packet Assembly, Surface Sampler, to support the Payload called Joint Survey and Technology Comparison to Improve ISS Microbial Monitoring to determined carrier location.	Up to 2 Flight Deliveries. Per Flight Schedule.

2.2 – HMS Management, Control, and Integration

Subtask Overview:

This subtask will provide supervisory and administrative activities required to manage work in the Health Maintenance System (HMS) and integration of HMS hardware resupplied this task order. The range of work covers oversight of activities and duties performed in support of the other subtasks. Major activities include task order project management, issue resolution, status and reporting, maintenance of cost, oversight of procurement and shipping activities, property management, consolidated schedules, monthly reviews of cost, schedule, and technical status, configuration management, hardware and safety process development, risk assessment and mitigation strategies, management of task order travel, and special projects.

Hardware integration activities will include support of SA owned CHeCS HMS hardware at ISS Program meetings, responding to concerns regarding delivery and shipment of hardware for flight, obtaining approvals for integration products, representing SA owned CHeCS HMS hardware at post-delivery meetings, supporting manifest meetings with data, summarizing returned hardware condition, and providing input from both science and hardware personnel for determining feasible delivery dates. Hardware Integration support of HMS hardware is limited to SA owned hardware. Cargo Mission Contract (CMC) HMS hardware is not included.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.2		HMS Management, Control, and Integration	
203		HMS Management & Control	
203	1	The contractor shall provide management oversight (e.g. issue resolution, risk assessment, resource conflict, status and reporting, travel management, and team meetings) for all HMS subtasks within this Task Delivery Order (TDO).	Activity Report. Weekly.
203	2	The contractor shall provide an integrated schedule of the HMS TDO subtask activities.	Schedule posted to NASA SharePoint website as *.pdf. Monthly.
203	3	The contractor shall maintain HMS SharePoint web content associated with task order requirements.	Updated SharePoint website. Monthly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
203	4	The contractor shall perform Configuration Management of controlled items developed under this TDO in accordance with JSC 28330, *Space Life Sciences Directorate Configuration Control Management Plan.*	Activity Report. Weekly.
203	5	The contractor shall perform Export licensing assessment and classification for documents prepared for Technical Interchange Meetings (TIMs) conducted under this TDO.	Export classifications and documentation. Up to 2 per month.
203	6	The contractor shall compile and present an annual Lessons Learned presentation.	Presentation. August.
203	7	The contractor shall participate in forward planning with the Technical Monitor.	Memorandum with summary of anticipated work and cost estimates. March.
204		**HMS Hardware Integration**	
204	1	The contractor shall negotiate with CMC for delivery dates for each HMS hardware item on the manifest.	Status reports, conclusions, issues, risks and schedule updates. Documented in Activity Report.
204	2	The contractor shall respond to ISS Program, System Manager and SA NASA Customers regarding flight hardware delivery/shipment concerns.	Up to 11 Pre-ship Statuses. Per Flight Schedule.
204	3	The contractor shall provide logistics activities and documentation, including issue and anomaly resolution, for delivery of HMS flight hardware to the determined carrier location.	Up to 11 Flight Deliveries. Per Flight Schedule.
204	4	The contractor shall provide summary report of returned hardware status (e.g. expected verses actual returned hardware)	As-flown manifest report. Per Flight Schedule.
204	5	The contractor shall develop the CHeCS Internal Transfer List (CITL) for each flight with CHeCS subsystems manifest items.	CITL posting and inputs. Per Flight Schedule.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
204	6	The contractor shall update and maintain the SA Integration SharePoint Site with current HMS Integration information.	SA Integration SharePoint Website Updates. Monthly.
204	7	The contractor shall participate in HMS hardware and integration related meetings (SPRTs, etc.).	Meeting Participation. Up to 5 per month.
204	8	The contractor shall provide logistics activities and documentation for up to 6 manifested HMS items identified less than 16 weeks prior to launch.	Flight Hardware identified less than 16 weeks prior to launch. Up to 6 times per Fiscal Year.
204	9	The contractor shall review and update the *Hardware Integration Standard Operating Procedure*, JSC-66132.	Documentation. As needed up to once during Fiscal Year.

2.3 – EHS and Radiation Sustaining and Resupply

Subtask Overview:

The contractor will provide resupply and logistics and sustaining support of the SA-EHS and Radiation flight hardware and software.

The contractor will provide engineering support of the EHS and Radiation crew training class III hardware and software. Supported project tasks include troubleshooting hardware/software, maintenance of hardware/software (including softgoods and accessories) and anomaly resolution. The supported projects include:

Air

- Air Quality Monitor (AQM)
- Carbon Dioxide Monitor Kit (CDMK)
- Compound Specific Analyzer for Combustion Products (CSA-CP)
- Formaldehyde Monitoring Kit (FMK)
- Grab Sample Containers (GSC)
- In-Flight Gas Delivery System (IGDS)
- ISS Portable Oxygen Monitor (POM)
- POM Calibration Adapter

Water/Micro

- Colorimetric Water Quality Monitoring Kit (CWQMK)
- EHS Water Kit
- Microbial Air Sampler (MAS)

- Surface Sampler Kit (SSK)

Acoustics
- Acoustic Dosimeter (AD)
- Acoustic Dosimeter Data Receiver (ADDR)
- Sound Level Meter (SLM)

Radiation
- Crew Passive Dosimeter (CPD)
- Radiation Area Monitor (RAM)
- High Rate Dosimeter (HRD)
- Tissue Equivalent Proportional Counter (TEPC)
- Extravehicular - Charged Particle Directional Spectrometer (EV-CPDS)
- Intravehicular - Tissue Equivalent Proportional Counter (IV-TEPC)

Supported projects include flight units, ground systems, off-site laboratory equipment, accessories, and unique testing equipment. Tasks include maintenance of ground equipment, troubleshooting hardware/software package development, and mission anomaly resolution.

Sustaining engineering will be allocated resources to support up to 10 anomalies before Special Tasks is impacted. An anomaly could be an event on the ground during use of the hardware or an on-orbit problem closure. The contractor will document the number of anomalies in the monthly Technical, Cost, Schedule Review (TCSR) report once the customer agrees an anomaly has occurred.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.3		**EHS and Radiation Sustaining & Resupply**	
205		**Air Hardware Sustaining and Resupply**	
205	1	The contractor shall perform nominal sustaining engineering of Air hardware to ensure items are available for flight processing (e.g. monitor, analyze and document on-orbit performance, track/update calibration and certification, prepare safety documentation package and obtain approval, design and content changes including updating drawings, generating Change Requests (CRs) , performhardware or softgoods modifications, participate in review of returned hardware, participate in SPRTs, report on delivery of mission specific hardware, etc.).	Activity Report. Weekly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
205	2	The contractor shall project, procure, maintain, supply, stock, and configure the Air hardware, including any associated hardware and supplies per the flight manifest for the quantity of flights specified.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
205	3	The contractor shall retrieve and perform postflight inventory on the Air hardware after each returning flight, including photos as required.	Activity Report and Photos posted to NASA SharePoint. Once per returning flight, return plus 90 days.
205	4	The contractor shall resupply and repack hardware deliverables as required due to launch delays as allowed by ISS Program schedule.	Flight Hardware. Up to 8 during Fiscal Year.
205	5	The contractor shall provide technical engineering expertise for crew training lesson plan development.	Activity Report. Quarterly or as needed.
205	6	The contractor shall perform tasks associated with the integration of the Air software suite with the SSC System 5/Windows 7 Update for CSA-CP, CDM, and AQM.	Activity Report. Weekly.
205	7	The contractor shall perform testing/analysis and provide associated documentation in support of extending the shelf life of the flight IGDS fill gas from 3 to 5 years.	Updated GCAR. May.
205	8	The contractor shall review Air Hardware Sustaining Engineering Plans (SEPs) and update as required. Air Hardware includes: POM, CSA-CP, GSC, FMK, CDM, IGDS, and AQM.	Up to 7 SEPs as required. April.
205	9	The contractor shall coordinate an Air Hardware meeting between Engineering, Toxicology, BME Operations Team Lead, EHS System Management, and Crew Training.	Meeting agenda and action tracker. Up to 1 per month.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
205	10	The contractor shall coordinate an AQM meeting between Engineering, Toxicology, BME Operations Team Lead, and EHS System Management.	Meeting agenda, meeting notes, and action tracker. Up to 1 per quarter.
205	11	The contractor shall manage the NASA SharePoint web content specific to this work package.	Updated SharePoint web content. Monthly.
205	12	The contractor shall perform testing/analysis and provide associated documentation in support of extending the shelf life of the Carbon Dioxide Monitor (CDM).	Updated GCAR. September.
205	13	The contractor shall perform testing/analysis and provide associated documentation in support of extending the shelf life of the Compound Specific Analyzer-Combustible Products (CSA-CP) Monitor.	Updated GCAR. September.
205	14	The contractor shall perform testing/analysis and provide associated documentation in support of extending the calibration interval of the Portable Oxygen Monitor (POM).	Documentation. September.
205	15	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the Air hardware. A long lead procurement with Industrial Scientific is included.	Materials. September.
206		**Water/Micro Hardware Sustaining and Resupply**	
206	1	The contractor shall perform nominal sustaining engineering of Water/Micro hardware to ensure items are available for flight processing (monitor, analyze and document on-orbit performance, track/update calibration and certification, prepare safety documentation package and obtain approval, design and content changes including updating drawings, generating CRs , perform hardware or softgoods modifications, participate in review of returned hardware, participate in SPRTs, report on delivery of mission specific hardware, etc.).	Activity Report. Weekly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
206	2	The contractor shall project, procure, maintain, supply, stock, and configure the Water/Micro hardware (including any associated hardware and supplies) per the flight manifest for the quantity of flights specified.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
206	3	The contractor shall retrieve and perform postflight inventory on the Water/Micro hardware after each returning flight (including photos as required).	Activity Report and Photos posted to NASA SharePoint. Once per returning flight return plus 90 days.
206	4	The contractor shall resupply and repack hardware deliverables as required due to launch delays as allowed by ISS Program schedule.	Flight Hardware. Up to 6 during Fiscal Year.
206	5	The contractor shall provide technical engineering expertise for training lesson plan development.	Documentation. Quarterly or as needed.
206	6	The contractor shall perform tasks associated with the integration of the CWQMK software with the SSC System 5/Windows 7 Update.	Activity Report. Weekly.
206	7	The contractor shall provide engineering support to meetings conducted to identify potential configuration improvements to and shelf life extensions of currently certified hardware.	Meeting Participation. Monthly or as scheduled.
206	8	The contractor shall provide engineering expertise to Microbiology Lab personnel in support of Surface Sampler Kit (SSK) shelf life extension from 9 to 18 months or greater.	Documentation. September.
206	9	The contractor shall review Water/Micro Hardware Sustaining Engineering Plans (SEPs) and update as required. Water/Micro Hardware includes: CWQMK, Water Kit, SSKs, and MAS.	Up to 4 SEPs as required. April.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
206	10	The contractor shall coordinate a meeting between Engineering, Water/Micro, BME Operations Team Lead, EHS System Management, and Crew Training.	Meeting agenda and action tracker posted to SharePoint. Monthly.
206	11	The contractor shall manage the NASA SharePoint web content specific to this work package.	Updated SharePoint web content. Monthly.
206	12	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the Water/Micro hardware. A long lead procurement with Molecular Toxicology is included	Materials. Per EHS Working Manifest (Estimated delivery by September).
206	13	The contractor shall procure materials, fabricate, and deliver 49 PACKET ASSEMBLY, PETRI DISHES to support the Payload called Joint Survey and Technology Comparison to Improve ISS Microbial Monitoring.	Flight Hardware. September.
206	14	The contractor shall procure materials, fabricate, and deliver 12 Packet Assembly, Surface Samplers to support the Payload called Joint Survey and Technology Comparison to Improve ISS Microbial Monitoring.	Flight Hardware. September.
207		**Acoustics Hardware Sustaining and Resupply**	
207	1	The contractor shall perform nominal sustaining engineering of Acoustics hardware to ensure items are available for flight processing (monitor, analyze and document on-orbit performance, track/update calibration and certification, prepare safety documentation package and obtain approval, design and content changes including updating drawings, generating CRs , performing hardware or softgoods modifications, participate in review of returned hardware, participate in SPRTsreport on delivery of mission specific hardware, etc.).	Activity Report. Weekly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
207	2	The contractor shall project, procure, maintain, supply, stock, and configure the Acoustics hardware (including any associated hardware and supplies) per the flight manifest for the quantity of flights specified.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
207	3	The contractor shall retrieve and perform postflight inventory on the Acoustics hardware after each returning flight.	Activity Report and Photos posted to NASA SharePoint. Once per returning flight return plus 90 days.
207	4	The contractor shall provide technical engineering expertise for training lesson plan development.	Documentation. Quarterly or as needed.
207	5	The contractor shall perform tasks associated with the integration of the Acoustic Dosimeter software suite with the SSC System 5/Windows 7 Update.	Activity Report. Weekly. September.
207	6	The contractor shall acceptance test all vendor part number Acoustic Dosimeters (ADs).	Flight Hardware. April.
207	7	The contractor shall review the Acoustics Hardware Sustaining Engineering Plan (SEP) and update as required.	Up to once during Fiscal Year.
207	8	The contractor shall manage the NASA SharePoint web content specific to this work package.	Updated SharePoint web content. Monthly.
207	9	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the Acoustics hardware.	Materials. Per EHS Working Manifest (Estimated delivery by September).
208		**Environmental Health System Crew Training Hardware Support**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
208	1	The contractor shall provide personnel and materials to complete configuration management of the B4S trainers associated with this subtask.	Corrective Action List and Activity Report. Once per quarter, as requested.
208	2	The contractor shall provide trainer and Class III hardware maintenance associated with this subtask.	Training Maintenance, Class III H/W, and Activity Report. Weekly.
208	3	The contractor shall provide reasonable action time for training hardware malfunctions and anomalies associated with this subtask.	Activity Report. Weekly.
209		**Radiation Sustaining and Resupply**	
209	1	The contractor shall perform nominal sustaining engineering of Radiation hardware to ensure items are available for flight processing (monitor, analyze and document on-orbit performance, track/update calibration and certification, prepare safety documentation package and obtain approval, design and content changes including updating drawings, generating CRs, performing hardware or soft goods modifications, participate in review of returned hardware, participate in SPRTs, report on delivery of mission specific hardware, etc.).	Activity Report. Weekly.
209	2	The contractor shall project, procure, maintain, supply, stock, and configure the Radiation hardware (including any associated hardware and supplies) per the flight manifest for the quantity of flights specified.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
209	3	The contractor shall retrieve and perform postflight inventory on the Radiation hardware after each flight (including photos as required) and report to System Manager.	Activity Report. Weekly. Once per flight return plus 90 days.
209	4	The contractor shall resupply and repack hardware deliverables as required due to launch delays as allowed by ISS Program schedule.	Flight Hardware. Up to 2 during Fiscal Year.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
209	5	The contractor shall provide technical engineering expertise for training lesson plan development.	Documentation. Quarterly, or as needed.
209	6	The contractor shall manage the NASA SharePoint web content specific to this work package.	Updated SharePoint web content. Monthly.
209	7	The contractor shall review, and update as required, Sustaining Engineering Plans: CPD/RAM/HRD and TEPC/EVCPDS	Up to two Sustaining Engineering Plans as required. April.
209	8	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the Radiation hardware.	Materials. Per Radiation Working Manifest (Estimated delivery by September).
210		**Radiation Crew Training Support**	
210	1	The contractor shall provide personnel and materials to complete configuration management of the crew training class III hardware associated with this subtask.	Corrective Action List and Activity Report. As required.
210	2	The contractor shall provide Class III hardware maintenance associated with this subtask.	Class III H/W Maintenance and Activity Report. As required.
210	3	The contractor shall provide reasonable action time for resolving training hardware malfunctions and anomalies associated with this subtask.	Activity Report. Weekly.
211		**IV-TEPC Sustaining and Resupply**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
211	1	The contractor shall perform nominal sustaining engineering of IV-TEPC hardware and software to ensure items are available for flight processing (monitor, analyze and document on-orbit performance, track/update calibration and certification, prepare safety documentation package and obtain approval, design and content changes including updating drawings, generating CRs, performing hardware or soft goods modifications, participate in review of returned hardware, participate in SPRTs, etc.).	Activity Report. Weekly.
211	2	The contractor shall schedule, develop agenda, and conduct a weekly ISS IV-TEPC data review meeting.	Meeting agenda, Meeting action tracker. Up to 1 time per week during Fiscal Year.
211	3	The contractor shall complete drawing updates for alternate parts, editorial corrections, and updated NASA specifications.	Engineering Drawings. Up to 3 per Fiscal Year.
211	4	The contractor shall provide resolution for Failure Investigation Anomaly Reports (FIARs) for problems detected.	Documentation. Up to 2 per Fiscal Year.
211	5	The contractor shall provide resolution for Anomaly Reports (ARs) and In-Flight Anomalies (IFIs) for problems detected.	Documentation. Up to 3 per Fiscal Year.
211	6	The contractor shall maintain current pressure system certification for the Building 15 IV-TEPC lab equipment for items expiring.	Documentation. As needed.
211	7	The contractor shall provide meeting support activities to provide status on the IV-TEPC system, on-orbit status, and flight hardware processing activities.	Meeting participation. Up to 5 times per month.
211	8	The contractor shall complete Pre-Delivery Acceptance/Pre-Installation Acceptance (PDA/PIA) of the IV-TEPC per the flight manifest.	Flight Hardware and Pre-Ship Photos. Up to 1 time during Fiscal Year.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
211	9	The contractor shall update the Acceptance Data Package for the IV-TEPC based upon execution of PDA/PIA.	Documentation. Up to 1 time during Fiscal Year.
211	10	The contractor shall retrieve the IV TEPC hardware after return from ISS (including photos as required) and place it into Bonded Storage.	Flight Hardware and Post-Flight Photos. Up to 1 time during Fiscal Year.
211	11	The contractor shall perform tasks associated with the integration and acceptance testing of the IV-TEPC SSC software with the SSC System 5/Windows 7 Update.	Activity Report. Weekly.
211	12	The contractor shall provide engineering services to draft, execute, and close nominal Sustaining Engineering Work Authorization Documents.	Activity Report. Weekly.
211	13	The contractor shall maintain IV-TEPC SharePoint, including updated configuration files and ground processing software executable files.	Updated SharePoint website. Monthly.
211	14	The contractor shall provide equipment maintenance of the IV-TEPC specific equipment. Maintain equipment calibrations, and special test equipment.	Activity Report. Weekly.
211	15	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the IV-TEPC.	Materials. Per Radiation Working Manifest (Estimated delivery by September).
212		**IV-TEPC Training Support**	
212	1	The contractor shall provide reasonable action time for resolving training hardware malfunctions and anomalies associated with this subtask.	Activity Report. Weekly.
212	2	The contractor shall provide technical engineering expertise for training lesson plan development.	Documentation. Once per Quarter, as requested.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
212	3	The contractor shall provide software operator and class III IV-TEPC hardware for scheduled Operational Readiness Tests (ORT) at Sonny Carter Training Facility and other training needs.	Engineering activities. Up to 2 times/month during Fiscal Year.

2.4 – HMS Sustaining and resupply

Subtask Overview:

The subtask will provide sustaining engineering and resupply for the following HMS hardware and software:

- Medical Kit (includes 9 medical packs)
- ISS Medical Accessory Kit (IMAK)
- Respiratory Support Pack (RSP)
- Crew Medical Restraint System (CMRS)
- Fundoscope
- HMS Software Suite
    - Data Collection Tool (DCT)
    - WinScat
    - EarQ
    - Acuity Pro
- Crew Specific Earwear and Eyewear
- Non-Crew Specific Earwear

Supported projects include class I, II and III hardware, ground systems, laboratory equipment, accessories, and unique testing equipment.

Sustaining engineering will be allocated resources to support up to 3 anomalies before special projects tasking is impacted. Sustaining includes maintenance, troubleshooting and anomaly resolution of all hardware and software. Resupply includes all processing necessary for provision of both inflight and ground hardware and software.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.4		**HMS Sustaining & Resupply**	
213		**HMS Sustaining & Resupply**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
213	1	The contractor shall project, procure, maintain, supply, stock, and configure the HMS hardware (including any associated hardware and supplies) per the flight manifest for the quantity of flights specified.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
213	2	Per the flight manifest for the quantity of flights specified, the contractor shall process and deliver up to five (5) IMAKs for a flight with one USOS Crewmember launching, and up to eight (8) IMAKs for a flight with 2 USOS Crewmembers launching.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
213	3	The contractor shall repack and resupply hardware as required due to launch delays and shipping temperature violations.	Flight Hardware and Pre-Ship Photos. Up to 2 times during Fiscal Year.
213	4	When identified less than 4 months prior to vehicle launch, the contractor shall complete medications delivery for flight, including Moscow Technical Liaison Office (MTLO) support if medications are packed in Russia.	Flight Hardware and Pre-Ship Photos. Up to 8 times per Fiscal Year.
213	5	The contractor shall supply data to the HMS Inventory Tracking Tool (HITT) database manager for all resupplied hardware for each flight.	HITT inputs for each flight with HMS hardware manifested. Monthly.
213	6	The contractor shall procure and provide medical supplies to support the Medical Operations Clinic (Star City), Institute of Bio Medical Problems (IBMP) and SOS Clinic in Russia.	Class III Medical Supplies. Up to 4 times per Fiscal Year.
213	7	The contractor shall coordinate security, controlled storage, transportation, and disposal of pharmaceutical consumables in accordance with JSC Pharmacy Policy and Procedures and Federal regulations.	Activity Report. Per Integrated Schedule.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
213	8	The contractor shall manage the NASA SharePoint web content specific to this work package.	Updated SharePoint web content. Monthly.
213	9	The contractor shall perform nominal sustaining of HMS hardware to ensure items are available for flight processing (monitor, analyze and document on-orbit performance when data is available, track, calibrate and certify, prepare safety documentation package and obtain approval, prepare other documentation as required, support review of returned hardware, support SPRTs, update drawings, create change requests, modify equipment, etc.)	Activity Report. Weekly.
213	10	The contractor shall perform nominal sustaining of HMS software to ensure items are available for flight processing (monitor, analyze and document on-orbit performance when data is available, track calibrate, and certify, prepare safety documentation package and obtain approval, prepare other documentation as required, support review of returned hardware, support SPRTs, update drawings, create change requests, modify equipment, etc.)	Activity Report. Weekly.
213	11	The contractor shall develop and/or maintain a Software Classification and Safety Criticality Determination in accordance with JPR 7150.2.	JF 1704. As required.
213	12	The contractor shall support the Tiger Team (collaboration between Ops and Research) in performing trade-off studies comparing shelf-life data between vendors of Med Kit contents (medications, hardware and consumables with expiration dates) with the goal of extending time between resupply shipments, determining the efficacy of medications past expirations and determining usage rates to validate the resupply of items.	Activity Report. Weekly.
213	13	The contractor shall perform tasks associated with the integration of the HMS software suite with the SSC System 5/Windows 7 Update, which includes DCT, EarQ, Visual Acuity, Fundoscope, and WinSCAT.	Activity Report. Weekly.
213	14	The contractor shall review HMS Sustaining Engineering Plans (SEPs) and update as required. HMS Hardware includes: IMAK, Med Kit, CMRS, RSP, Fundoscope, and HMS SW.	Up to 6 SEPs as required. April.
213	15	The contractor shall build a draft Data Collection Tool form for the ESA experiment, Spacetex, and deliver it to ESA for concurrence.	Activity Report. Weekly.
213	16	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the HMS hardware and software.	Materials. Per HMS Working Manifest (Estimated delivery by September).

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
214		**HMS Training Hardware**	
214	1	The contractor shall provide personnel and materials to perform configuration management of the B9 trainers, Multipurpose Support Room (MPSR), Medical Simulation Lab (MSL), and engineering Class 3 hardware.	Corrective Action List and Activity Report. January, April, July, October.
214	2	The contractor shall provide trainer and Class III hardware maintenance in response malfunctions and anomalies.	Training Maintenance, Class III Hardware, and Activity Report. Weekly.
214	3	The contractor shall provide technical engineering expertise for training lesson plan development.	Finalized Training Lesson Plan Document. Quarterly or as needed.

2.5 – Special Tasks
RESERVED

2.6 – Countermeasure System (CMS) Software Development and Sustaining
Subtask Overview:
This subtask includes tasks related to sustaining Countermeasures System (CMS) ground software. This includes bug fixes, required regular maintenance, and application changes due to infrastructure changes, and customer consultation.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.6		**CMS Software Development & Sustaining**	
216		**CMS Ground Software Sustaining**	
216	1	The contractor shall sustain the CMS ground software. Issue priority will be defined by the customer.	Software updates. As required.
216	2	The contractor shall develop and/or maintain a Software Classification and Safety Criticality Determination in accordance with JPR 7150.2.	JF 1704. As required.

2.7 – Radiation Assessment Detector Sustaining and Resupply

Subtask Overview:

The contractor will provide resupply and logistics and sustaining support of the Radiation Assessment Detector flight hardware and software.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.7		**Radiation Assessment Detector Sustaining and Resupply**	
217		**Radiation Assessment Detector Sustaining and Resupply**	
217	1	The contractor shall perform nominal sustaining engineering of Radiation hardware to ensure items are available for flight processing (monitor, analyze and document on-orbit performance, track/update calibration and certification, prepare safety documentation package and obtain approval, design and content changes including updating drawings, generating CRs, performing hardware or softgoods modifications, participate in review of returned hardware, participate in SPRTs, report on delivery of mission specific hardware, etc.).	Activity Report. Weekly.
217	2	The contractor shall project, procure, maintain, supply, stock, and configure the Radiation hardware (including any associated hardware, software and supplies) per the flight manifest for the quantity of flights specified.	Flight Hardware and Pre-Ship Photos. Once per flight per Program delivery schedule.
217	3	The contractor shall retrieve and perform postflight inventory on the Radiation hardware after each flight (including photos as required) and report to System Manager. .	Activity Report. Weekly. Once per flight return plus 90 days.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
217	4	The contractor shall resupply and repack hardware deliverables as required due to launch delays as allowed by the ISS Program schedule.	Flight Hardware. Up to 2 during Fiscal Year.
217	5	The contractor shall provide technical engineering expertise for training lesson plan development.	Documentation. Quarterly, or as needed.
217	6	The contractor shall manage the NASA SharePoint web content specific to this work package.	Updated SharePoint web content. Monthly.
217	7	The contractor shall review, and update as required, Sustaining Engineering Plan for RAD.	Sustaining Engineering Plan. April.
217	8	The contractor shall procure all materials required for nominal sustaining and ISS resupply of the Radiation hardware.	Materials. Per Radiation Working Manifest (Estimated delivery by September).
217	9	The contractor shall complete drawing updates for alternate parts, editorial corrections, and updated NASA specifications.	Engineering Drawings. Up to 3 per Fiscal Year. .

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
217	10	The contractor shall provide resolution for Failure Investigation Anomaly Reports (FIARs) for problems detected.	Documentation. Up to 2 per Fiscal Year. .
217	11	The contractor shall provide resolution for Anomaly Reports (ARs) and In-Flight Anomalies (IFIs) for problems detected.	Documentation. Up to 3 per Fiscal Year.
217	12	The contractor shall provide meeting support activities to provide status on the RAD system, on-orbit status, and flight hardware processing activities.	Meeting participation. Up to 5 times per month.
217	13	The contractor shall provide engineering services to draft, execute, and close nominal Sustaining Engineering Work Authorization Documents.	Activity Report. As required.
217	14	The contractor shall provide equipment maintenance of the RAD specific equipment. Maintain equipment calibrations, and special test equipment.	Activity Report. As required.

2.8 – Wet Lab Kit and Disposable Glove Bag

Subtask Overview:

This subtask is responsible for overall management and sustaining of the ISS Wet Lab Kit (WLK) and Disposable Glove Bag (DGB) through experiment resupply.

Major activities include: task order project management, issues resolution, status and reporting, cost maintenance and reporting, monthly reviews, and Configuration Management (CM), procurement, flight and training hardware development, and shipping.

The contractor's Action Item (AI) Form will be used to establish any additional, specific requirements for each set of consultative tasks. The action item form will define intermediate and final products, reporting and schedule requirements. SF will initiate a task request using the Action Item Form.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.8		**Wet Lab Kit and Disposable Glove Bag**	
218		**Wet Lab Kit and Disposable Glove Bag Sustaining & Resupply**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
218	1	The contractor shall participate in Monthly tag-ups with the NASA Technical Monitor (TM). Items of discussion are to include nominal status, schedule status, and reports of manufacturability and maintainability issues for hardware provided under this subtask, as such issues arise.	Meeting Participation. Monthly.
218	2	The contractor shall produce and submit Monthly Progress/Status Package and Present Monthly summary to TM. Monthly Progress/Status Package includes, but may not be limited to the following: • Materials Status (plan vs. actual) • Financial status • Technical issues status • Risk & Opportunities status/updates	Monthly Status Report. Monthly.
218	3	The contractor shall provide Class III training hardware to users of the Wet Lab Kit.	Not to Exceed 6 Shipments. September.
218	4	The contractor shall complete coupon testing of the PFA/Nitrile tape interface.	Data Report. Two times during Fiscal Year.
218	5	The contractor shall provide project management support. This may include, but is not limited to, responding to technical questions, responding to on-orbit issues, low complexity paperwork updates, one resupply kit cost estimate, fiscal year 2016 planning, Wet Lab process development, on-orbit and ground hardware inventory log, two Issue Report Resolutions with Cargo Mission Contract (CMC), Maintenance Work Area (MWA) crew training integration for Glovebag, and assessing potential configuration changes with Investigators.	Accomplishment Report. Weekly.
218	6	The contractor shall procure and configure the Wet Lab Resupply Kit.	Flight Hardware. Up to 2 per Fiscal Year.
218	7	The contractor shall procure, downgrade and/or configure the following Wet Lab training hardware: Qty 4 – PVC Pipe Glovebag Frame (procure/assemble); Qty 6 – Glovebag Clips (downgrade qty 6 and then build); Qty 1 – Glovebag Filter.	Class III Training Hardware. April.
218	8	The contractor shall procure Glovebags. Qty 40.	Flight Hardware. April.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
218	9	The contractor shall fabricate Glovebag Assemblies, Qty 20 –Class I and Qty 5 – Class III.	Flight Hardware. May.
218	10	The contractor shall ship quantity three Class I Vial Holders to Ames Research Center.	Flight Hardware. April.

2.9 – ISS T2 Management and Control

Subtask Overview:

This subtask will be responsible for the overall project management including maintenance of cost, schedule, and status reporting. Contractual modifications, impact assessments, and special studies activity will be initiated using Action Item Forms. Also included within this subtask are all configuration management (CM), quality management, risk management and subcontract management tasks.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.9		**ISS T2 Management and Control**	
219		**T2 Project Management**	
219	1	The contractor shall maintain the overall Master Project Schedule for the T2 system.	Submit 11 monthly Progress / Status Package and present summary to NASA management team. Second week of each month.
219	2	The contractor shall maintain the overall Project Cost accounting for the T2 system.	Submit 11 monthly Progress / Status Package and present summary to NASA management team. Second week of each month.
219	3	The contractor shall provide contract management for this subtask and subtask modifications including up to 2 Request for Amendments (RFA) and 2 Technical Change Request (TCR) for work in this Subtask.	Subtask modifications, WBS modifications, BOE, RFA's, TCR's; Not to Exceed (NTE) 2RFA and 2 TCR. As required.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
219	4	The contractor shall provide T2 Cost and schedule impacts due to customer-requested changes.	Up to 7 estimates with basis of estimate over the period of performance. As required.
219	5	The contractor shall participate in forward planning with Technical Monitor.	Memorandum with summary of anticipated work and cost estimates. March.
220		**T2 Status and Reporting**	
220	1	The contractor shall develop weekly technical status/progress report and deliver to NASA customer.	Activity Report. Weekly.
220	2	The contractor shall participate in as required (no less than weekly) tag-ups with the NASA Technical Monitor. Items of discussion are to include nominal status, as well as reports of manufacturability and maintainability issues for hardware provided under this Subtask as such issues arise.	As required. At least weekly.
220	3	The contractor shall produce and submit Monthly Progress/Status Package and Present a summary to the NASA management team. The monthly Progress/Status Package shall include: • Summary of the previous month's major technical highlights (i.e. accomplishments, upcoming milestones) • Financial status • Hardware and software status • Risk status/updates • Metrics for Task Order contract deliverables status (early, on-time, late, not delivered)	Submit 11 monthly Progress / Status Package and present summary to NASA management team. Monthly.
220	4	The contractor shall provide Administrative activities in the form of recorded notes and minutes for as required Program and Project meetings This also includes the agendas and minutes of the T2 Configuration Control Board (CCB).	Minutes to be posted on server. Five working days following completion of meeting.
220	5	The contractor shall ensure that documentation changes are Configuration Management (CM) processed through the FHD CCB and T2 CCB in accordance with JSC 63723.	Activity Report. As required.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
220	6	The contractor shall assemble charts for statusing T2 Project to the ISS Program Boards.	Up to 3 Presentation chart sets. As required.
220	7	The contractor shall provide technical meeting support for the following: CHeCS CMS SPRT Manifest Splinter IFI/FIAR Panel FIAR Closure meetings CMS Morning Daily Tag	Presentation charts and summary notes. Weekly or as required.
220	8	The contractor shall maintain the following T2 System Documentation: Project Management Plan (JSC-63745) Configuration Management Plan (JSC-63723) Sustaining Engineering Plan (JSC-64074)	PMP, CMP, SEP revisions/updates. As required. Updates NTE Qty 1 per document over the Fiscal Year.

2.10 – ISS T2 Sustaining Engineering

Subtask Overview:

This subtask will be responsible for providing sustaining engineering activities for the on-orbit and ground T2 System and related equipment, including design, manufacture, repair and refurbish activities, and anomaly resolution of hardware and software anomalies. This anomaly activity will be initiated using Action Items (AI), except in the case of ISS system initiated In Flight Investigations (IFIs). IFI resolutions will initiate the action item associated with the FIAR. This subtask will also be responsible for delivery of the Subject Loading System (SLS) that is designed, developed and certified as a T2 Orbital Replacement Unit (ORU) by the European Space Agency (ESA).

The criteria for on orbit anomalies based on past experience is:
Large anomaly: 8 weeks/3 EP at 60 hrs/ week (1440 hrs)
Medium Anomaly: 4 weeks/2 EP- 40 hrs/wk (320 hrs)
Small Anomaly 2 weeks/ 1 EP-40 hrs/wk (80 hrs)

The criteria for ground anomalies is:
Large anomaly: 4 weeks/3 EP at 60 hrs/ week (720 hrs)
Medium Anomaly: 2 weeks/2 EP- 40 hrs/wk (160 hrs)
Small Anomaly 1 week / 1 EP-40 hrs/wk (40 hrs)

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.10		**ISS T2 Sustaining Engineering**	
221		**SLS Documentation and Delivery**	
221	1	Complete 2 minor updates to ESA provided hardware that includes adding labels, and securing connectors.	Data Package to be included into ESA-provided ADP document. December.
221	2	The contractor shall deliver SLS flight unit and flight model spare.	Applicable documentation (Data Package from integration testing to be included in ESA provided ADP document). March.
222		**T2 Operations and Training**	
222	1	The contractor shall provide Flight Readiness Assessments for up to 11 flights.	Status Reports. As required.
222	2	The contractor shall support weekly status meetings with customer.	Meeting Minutes. Weekly.
222	3	The contractor shall provide data analysis & trending of the on-orbit hardware.	Report. Monthly.
222	4	The contractor shall provide specialized engineering/ops analysis to support hardware and software sustaining.	Status Reports. Per Ops Schedule.
222	5	The contractor shall provide engineering support of ops procedure development, reviews, and procedure verification.	Status Reports. Per Ops Schedule.
222	6	The contractor shall review ops products (such as Chits, FNs, and FIARs).	Status Reports. Per Ops Schedule.
222	7	The contractor shall review and assess data from on-orbit activities (including photos and videos) to assess performance and status of the system.	Post-Activity Assessment. Per Ops Schedule.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
222	8	The contractor shall support upload of T2 software including procedure development, coordination with the MER, and real-time console support to maintain system functionality.	T2 flight software upload procedure, documented in Station Operation Data File (SODF) Procedures Book. Up to 3 times per Fiscal Year.
222	9	The contractor shall support Increment crew debriefs. Includes attendance of pre- and post- meetings and actual debrief in order to capture and assess technical issues.	Crew Debrief Summary. Per Ops Schedule.
222	10	The contractor shall provide console support activities for planned maintenance activities.	On-Orbit Activity Staffing Plan and Post-Activity Assessment. Per Ops Schedule.
222	11	The contractor shall provide safety reflight letters for each flight. NTE 11.	Form letter based on SSP 30599 Sec.7.0. Up to 11 Safety Reflight Letters. Per Flight Schedule.
223		**Hardware and Software Maintenance**	
223	1	The contractor shall update the Quality Assurance Record Center (QARC) with Task Performance Sheets (TPS's) and Discrepancy Report (DR's) while sustaining T2 hardware.	QARC Updates Referencing TPS's and DR's. As required.
223	2	The contractor shall provide contingency operational support activities for planned Space Station Computer (SSC) operation system migration to System 5.	On-Orbit Activity Staffing Plan and Post-Activity Assessment. Per Ops Schedule.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
223	3	The contractor shall provide T2 integrated support to consolidate, present, and represent the HHPD, & SLS position on all T2 on-orbit activities at CMS SPRT, Manifest Splinter, FITS, TIFS, Ops tag ups.	Status Reports. Reported in Activity Report. As required.
223	4	The contractor shall sustain 1 treadmill in support of T2Rack 2 ground operations.	Task Performance Sheet (TPS's). Per Project Master Schedule.
223	5	The contractor shall procure enough materials to manufacture 16 (8 pair) SBS bungees.	Materials (metal parts only). February.
223	6	The contractor shall provide Stress, Material, and Quality engineering review and approval of all updated T2 drawings for up to 2 individual drawings.	Up to 2 individual Engineering Drawing Control Center (EDCC) Drawing Revisions. As required.
223	7	The contractor shall support HRM project with ground test using Treadmill Engineering Unit or meetings in support of HRM data gathering.	Up to 2 half day tests, and four meetings a year. As required.
223	8	The contractor shall maintain spares and inventory of HRM components provided for the T2 project.	Spares List. As required.
224		**T2 Resupply and Spares**	
224	1	The contractor shall provision the supply of 6 Glenn Harness for 6 crew members.	6 Harnesses (part number 60106MFA-2 and 60106MFA-3). Per Project Master Schedule.
224	2	The contractor shall perform PDA, ground safety checklists, and delivery paperwork for up to qty 6 harnesses manufactured and delivered to HHPC and deliver to CMC for transport to ISS.	6 Harnesses (part number 60106MFA-2 and 60106MFA-3). Per Project Master Schedule.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
225		**T2 Quality Engineering and Assurance**	
225	1	The contractor shall develop and release Acceptance Data Package, Certificate of Compliance and NASA DD Form 250, 1149 or 290 to accompany all T2 related flight hardware deliverables developed under this Subtask.	ADP and Certificate of Compliance as required. As Required.
225	2	The contractor shall update the Quality Assurance Record Center with Task Performance Sheets (TPS's) and Discrepancy Report (DR's) while processing T2 resupply and spare hardware.	QARC Updates referencing TPS's and DR's. As Required.
225	3	The contractor shall provide Quality Engineering (QE) review and Quality Assurance (QA) coverage for all T2 resupply and spare hardware sustaining activities.	TPS's, DR's, QARC updates. As Required.
226		**T2 On-Orbit Anomalies**	
226	1	The contractor shall provide activities for 1 medium and up to 6 small on-orbit anomalies affecting the integrated T2 system (with VIS) in Node 3.	Report. As required.
226	2	The contractor shall provide up to 24 hours of activities for anomalies affecting the Vibration Isolation System.	Report. As Required.
226	3	The contractor shall provide activities for 1 large on orbit anomaly affecting the integrated T2 system.	Report. As Required.
227		**T2 Ground Anomalies and FIAR Resolution**	
227	1	The contractor shall provide activities for 1 small ground anomaly affecting T2 Rack 2 (ground rack).	Report. As Required.
227	2	The contractor shall provide FIAR resolution recommendation support for T2 system hardware (up to 8 FIARS at 10 hours and 10 IFIs at 8 hrs).	Report. As Required.
228		**T2 Integration**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
228	1	The contractor shall implement process for reporting and assessment of bumps.	Meeting Minutes from TIM, Process document. As Required.
228	2	The contractor shall provide sustaining engineering support for the integration between T2 and the vibration isolation system (VIS).	Reports and inputs for action item closures. As Required.
228	3	The contractor shall produce standard bump reports.	Reports. As Required.

2.11 – ISS Payload Support

Subtask Overview:

The purpose of this subtask is to perform sustaining engineering of the ISS Single Stowage Locker Systems and provide Payload Rack Checkout Unit (PRCU) testing support for OB Payload verification activities, including configuration and operation of the PRCU.

The ISS Single Stowage Locker is certified for soft stowed launch in the Automated Transfer Vehicle (ATV), H-II Transfer Vehicle (HTV), Orbital Cygnus vehicle, Space-X Dragon vehicle, and ISS operation environments. Tasks include delivering systems for launch, inventory tracking, and maintenance of ground equipment, troubleshooting hardware, and mission anomaly resolution.

The PRCU is a test bed that provides simulated station interfaces for the purpose of verifying payload operations on the ground prior to delivery of hardware/software to station. Task includes review of payload specific verification requirements, providing test planning inputs, conducting facility test readiness reviews, operating the PRCU, and directing test operations.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.11		**ISS Payload Support**	
229		**ISS Lockers**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
229	1	The Contractor shall maintain, service, and resupply the ISS Lockers and Payload Mounting Panel/Vented Payload Mounting Panel (PMP/VPMP) Adapter Plate. Tasks include the following: a) Calibrate 2 leak rate test fixtures b) Provide quarterly status report for ISS Lockers and PMP/VPMP Adapter Plate inventory and limited life tracking. c) Replace locker closeout seals for 4 ISS Lockers d) Replace panel closeout seals for 4 ISS Lockers e) Reconfigure locker by removing door for 2 ISS Lockers f) Ship up to 2 doorless lockers to CMC for flight with ADP	a) 1 Calibration Report b) 4 Inventory Reports c) 1 TPS d) 1TPS e) 1 TPS f) 290 COPY, POWRs record Per ISS Locker Schedule.

2.12 – ISSMP Sustaining Engineering

Subtask Overview:

The contractor will sustain and maintain the ISSMP Human Research Facility (HRF) hardware and software systems. The supported HRF systems are SLAMMD, Ultrasound 2, Refrigerated Centrifuge, Continuous Blood Pressure Device, Holter Monitor 2, Gas Delivery System, Pulmonary Function Module/Photoacoustic Analyzer Module (PFM/PAM), Pressurized Inhalation Gases (PIG), Hand Grip Dynamometer (HGD)/Pinch Force Dynamometer (PFD), HRF Power Supply, Actiwatch Spectrum, Percutaneous Electrical Muscle Stimulator 2 (PEMS) 2, HRF Common Hardware, MARES Power Interface Unit (PIU), Utility Drawers and Stowage Drawers, Systems include flight units, ground systems, laboratory equipment, accessories, and unique testing equipment. Tasks include delivering resupply for launch, maintenance of flight units on the ground and supporting ground equipment, troubleshooting hardware/software, and mission anomaly resolution. Sustaining engineering of these systems includes modifications or related new developments*.

Sustaining engineering will be allocated to provide engineering resources for 11 total failures across the facility class payloads. The anomalies could be on ground based hardware, on-orbit problem closure, or some combination. The contractor shall document the number of anomalies in the ISSMP monthly status report once the customer agrees that a failure has occurred.

It is anticipated that the UMS will have been placed into bond prior to the start of this TDO in FY16. Some closeout work may remain but no sustaining activities are planned.

*A particularly significant related new development for FY15 will be the development plan / strategy, concept, and prototpye build-up for a new 8 PU non-refrigerated centrifuge to replace the existing 12 PU Refrigerated Centrifuge drawer.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.12		**HRF Facility Hardware Sustaining Engineering**	
230		**HRF Facility Hardware Sustaining Engineering**	
230	1	The contractor shall provide engineering resources for ground and on-orbit anomaly resolution related to facility class payloads.	1 status report per anomaly, up to 11 anomalies. Per the ISSMP Master Schedules Book.
230	2	The contractor shall maintain, service, and resupply the Gas Delivery System (GDS), PFM/PAM, Pressurized Inhalation Gases (PIG), and related stowed equipment per the Reliability & Maintainability Predictions Report for the GDS; LS-71162-10A, Sustaining Engineering Plan for the PFM/PAM; and LS-71161-5, Sustaining Engineering Plan for the Human Research Facility (HRF) GDS.	1Test Preparation Sheets (TPS) for functional checkouts. 3 Pressure Systems Manager's Office (PSMO) inspections 14 gas fill (3 gas fills completed by April; 11 additional gas fills by September. Per the ISSMP Master Schedules Book.
230	3	The contractor shall maintain and service the HRF Space Linear Acceleration Mass Measurement Device (SLAMMD) drawer and related stowed equipment per LS-71087-6, Sustaining Engineering Plan for the Human Research Facility SLAMMD. For FY16 the SLAMMD will be relocated to building 9 and check-outs will be performed at its new permanent location.	4 TPSs for functional checkouts. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
230	4	The contractor shall maintain, service, and resupply the Ultrasound 2 and related stowed equipment.	10 TPSs for functional checkouts. Per the ISSMP Master Schedules Book.
230	5	The contractor shall maintain and service the Refrigerated Centrifuge (RC) and related stowed equipment per LS-71078-8, Sustaining Engineering Plan for the Human Research Facility Refrigerated Centrifuge.	2 TPS for functional checkouts. Per the ISSMP Master Schedules Book.
230	6	The contractor shall maintain and service the Holter Monitor 2 system equipment. Maintain all ground units per LS-71142-4, Sustaining Engineering Plan for the Holter Monitor 2 System.	2 TPSs for functional checkouts. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
230	7	The contractor shall maintain, service, and resupply the HRF common support equipment including 4 Panel Unit (PU) International Sub rack Interface Standard (ISIS), 8PU stowage drawer, Cooling Stowage Drawers, HRF Power Supply, common cable inventory, and HRF common fan inventory.	1 8PU Utility Drawer. 2 Test Preparation Sheets (TPS) for functional checkouts. 2 8PU Utility Drawer RFID packages. 2 8PU Utility Drawer modified RFID reader and housing packages (enclosure with SD extension adapter). 2 front panels for the Utility drawer. Per the ISSMP Master Schedules Book.
230	8	The contractor shall maintain and service the Muscle Atrophy Research and Exercise System (MARES) Power Interface Unit (PIU). Perform sustaining functional per LS-71090-4A, Functional Test Procedure for the MARES PIU.	1 TPS for functional checkout. Per the ISSMP Master Schedules Book.
230	9	The contractor shall maintain and service the Continuous Blood Pressure Device. Perform sustaining functional per CBPD per SEP, LS-71035-9.	2 TPS for functional checkout. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
230	10	The contractor shall develop a plan/strategy / schedule and concept for the next generation centrifuge drawer. Evaluate 2 COTS centrifuges to support flight down-selection.	1 schedule, 1 plan, 1concept, 1 COTS evaluation summary report / draft requirements document.1 prototype build-up. Per the ISSMP Master Schedules Book.
230	11	The contractor shall maintain, service, and resupply the HRF Actiwatch System equipment. Maintain all ground units per LS-71172-3, Sustaining Engineering Plan for the Actiwatch Spectrum System.	2 TPS for functional checkouts. 1 resupply label order. 1 lot of certified batteries (NTE 24 batteries.) Deliver NTE 18 Actiwatches (with certified batteries) to vendor for refurbishment. Per the ISSMP Master Schedules Book.
230	12	The contractor shall maintain and service Percutaneous Electrical Muscle Stimulator 2 (PEMS 2). Maintain all ground units per LS-71063-1, Sustaining Engineering Plan for the Human Research Facility PEMS 2.	2 TPSs for functional checkouts. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
230	13	The contractor shall maintain and service Hand Grip Dynamometer (HGD)/Pinch Force Dynamometer (PFD) hardware. Maintain all ground units per LS-71044-2, Sustaining Engineering Plan for the Human Research Facility HGD/PFD.	2 TPSs for functional checkouts. Per the ISSMP Master Schedules Book.
230	14	The contractor shall provide management oversight for the following ISSMP subtasks within this Task Delivery Order (TDO): 2.12, 2.13 and 2.14. For example, but not limited to: issue resolution, risk assessment, resource conflict, status and reporting, and team meetings.	Weekly/Bi-weekly meetings/minutes/action logs. Weekly.
230	15	The contractor shall provide a monthly Sustaining Engineering status charts and updated schedule for ISSMP activities.	ISSMP Monthly Internal Review Charts and Schedule. Monthly.

2.13 – ISSMP Systems Engineering

Subtask Overview:

The purpose of this subtask is to define, develop, and complete HRF interface requirements and verification documents with the OB/Systems Integration Office. In addition, this subtask provides requirement definition for all HRF hardware/software launching on ISS, Russian, HII Transfer Vehicle (HTV), Space-X, Orbital and Automated Transfer Vehicle (ATV) vehicles. Requirement definition is specifically for HRF payloads that include the integrated racks, drawers, stowed items, domestic and foreign PI-provided equipment, and developments done in collaboration with international partners.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.13		**ISSM Systems Engineering**	
231		**Systems Engineering**	
231	1	The contractor shall complete systems engineering datasets for all payloads listed on the ISSMP Launch Manifest.	Systems Engineering dataset. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
231	2	The contractor shall maintain an ISSMP Systems Engineering Data Library, including database management of ICD requirements verification matrices; paper file digitization of historical data; uploading and metadata tagging of newly digitized files; and uploading and metadata tagging of new digital files.	Bi-weekly meetings/minutes. Biweekly.
231	3	The contractor shall provide monthly Systems Engineering status charts and updated schedule for ISSMP activities.	ISSMP Monthly Internal Review Charts and Schedule. Monthly.

2.14 – ISSMP Integration, Software, and Safety

Subtask Overview:

The purpose of this subtask is to perform the testing, analysis, and integration of the HRF hardware and software for ISS launch packages. This subtask shall define, develop, maintain and implement an integration approach for each ISS flight. This subtask is to perform the testing, analysis, and integration of the HRF software.

This subtask is also to maintain the hardware and software in Building 241. The scope includes tasks to maintain an integration facility for HRF flight hardware and flight software systems.

The contractor shall sustain, maintain the HRF Information Technology flight hardware and flight software that consists of the HRF Laptop computers and associated ground and flight peripherals. The subtask identifies tasks for the HRF R2WS, accessory flight hardware, and flight software. It also includes ground systems, laboratory equipment, and unique testing equipment. The system includes the laptop, peripheral cards/cables, and software. This subtask also includes specific software developments for application on the flight laptop and peripherals.

For FY16 the HRF R2WS is being retired. Sustaining activity will consist of excessing non-essential systems and cannibalizing essential parts from drawers.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
2.14		**ISSMP Integration, Software, and Safety**	
232		**ISSMP Integration, Software, and Safety**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
232	1	The contractor shall complete the following ISSMP testing per the ISSMP manifest: tests can include software build, console support, procedure validation, and anomaly troubleshooting.	1 Test Package per Fiscal Year. Per the ISSMP Master Schedules Book.
232	2	The contractor shall complete hardware deliveries and integration support in each increment per the ISSMP Launch & Experiment Manifest.	1 Launch Site Package per Fiscal Year. Per the ISSMP Master Schedules Book.
232	3	The contractor shall provide a software engineering capability to: a) Review software engineering process annually (i.e. Software Development Plan, Software Configuration Management processes, software integration processes) b) Represent ISSMP on the Payload Software Control Panel and EXPRESS Software Control Panel to assess any impacts to the ISSMP contractor. c) Provide an update to Common Software d) Provide software upgrade certifications e) Reviewing and updating the HRF and associated payload command and data handling datasets in the Payload Data Library f) Begin the Common Software update to bypass the RIC per schedule g) Perform experiment software verification/preparation for delivery or installation in Integrated Load.	1 Software Package per period of performance. 1 CR to update SDP to document compliance with NPR 7150. 2 experiment software verifications. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
232	4	The contractor shall sustain the training racks in the PDL and troubleshoot hardware problems. Medium complexity problems are defined as work taking more than 40 but less than 80 hours. Low complexity problems are defined as work taking less than 40 hours.	Troubleshooting for up to 1 medium complexity problem and up to 2 low complexity problems or some combination of the above quantities. Per the ISSMP Master Schedules Book.
232	5	The contractor shall develop and deliver safety packages for experiments on the ISSMP Launch & Experiment Manifest.	1 Safety Package per Fiscal Year. Per the ISSMP Master Schedules Book.
232	6	The contractor shall deliver certified and accepted ISSMP flight software loads for laptops per LS-73006, Software Development Plan for ISS Increments. The loads shall also be installed in the LIF, High Fidelity Mock-up (HFM), and Training Rack 2. The contractor shall deliver Engineering versions of Integrated Load to the Ops team.	2 Laptop Integrated Loads, Build 14. 2 Rack Integrated Load Version Description Documents (VDDs). 3 Engineering Version Loads. Complete planning for Build 14: 1 Laptop Integrated Load PC3, Build 1 (Windows 7 version) 1 PC3, Build 1 VDD. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
232	7	The contractor shall incorporate upgraded EXPRESS flight software into the integrated laptop loads for flight and in the LIF, HFM, and Training Rack 2.	2 EXPRESS/HRF Test TPS. Per the ISSMP Master Schedules Book.
232	8	The contractor shall incorporate upgraded Rack Interface Controller (RIC) flight software into the integrated rack loads for flight and in the Launch Integration Facility (LIF), HFM, and Training Rack 2.	2 EXPRESS/HRF Test TPS. Per the ISSMP Master Schedules Book.
232	9	The contractor shall operate, maintain the facilities in B241: a) Conduct Test and Training Readiness Reviews (TRRs). b) Deliver monthly status report. c) Update and maintain calibration database. (Reduction per SA efficiency direction. Contractor will no longer act as alternate facility manager.)	a) One Facility TRR completed, one article TRR of new hardware in building and Test TRR if required b) 4 Status Reports c) Updated Calibration database Per the ISSMP Master Schedules Book.
232	10	The contractor shall excess, cannibalize and retire non-essential flight and ground Workstation2 and peripherals.	3 Status Reports and Inventory. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
232	11	The contractor shall monitor the flight laptop system development (T61P successor) for laptop replacement, new accessory development, and software updates. a) Provide HRF quantity inputs to the OZ/Payloads Office and track delivery schedule. b) Maintain inventory of all HRF flight and GSE laptops. c) Complete one flight Laptop base software load. d) Complete one flight Laptop base software load documentation. e) Download Windows 7 OS f) Complete one Windows 7 OS documentation.	a) 4 Status Reports. b) 1 inventory. c) 1 new Base load with windows 7 OS. d) 1 Base Load VDD. e) 1 Windows 7 operating system load. f) 1 OS Load VDD. Per the ISSMP Master Schedules Book.
232	12	The contractor shall provide monthly Integration, Safety and Software status charts and updated schedule for ISSMP activities.	ISSMP Internal Review Charts and Schedule. Monthly.

2.15 – ISSMP Experiment Unique Equipment Development

RESERVED

Attachment L – 3 – 3 TO-RFP-03 – Information Architecture Infrastructure & Operations

1. **Title of Effort: 3.0 – Information Architecture Infrastructure & Operations**
2. **Date of Request: October 31,2014**
3. **Statement of Work Task Description:**

The Purpose of this task order is to operate intelligent, robust, reliable, and secure enterprise-wide comprehensive information management solutions for the Human Health and Performance Directorate. Tasks will include working with the Flight Medicine and Occupational Medicine Clinics in support of electronic medical records, with the epidemiology group in support of long-term astronaut data collections, with the laboratories in support of laboratory data management, and working with data producers, analyzers and distributors at NASA JSC, NASA in general, and the International Partners (IP).

The work comprised in this task order will provide the systems administration, maintenance and technical support for the Medical and Mission Information System (MMIS) environment, including documentation, training, and coordination with various stakeholders, including NASA and other government information technology organizations. The MMIS environment contains hardware and software to support the development, testing and delivery of support contractor web sites, collaboration sites, databases, statistical analysis, data interfaces, electronic medical records, laboratory information systems, interfaces between these systems and other software and systems in production use by HH&P and its associated divisions and programs. Data will be securely accessed by authorized personnel, including flight surgeons, biomedical engineers and international partners, via secure technologies such as Virtual Private Network (VPN) and Public Key Infrastructure key encryption, and securely backed up and archived in conformance with applicable privacy and confidentiality rules and standards. Except for special cases, maintenance and technical support will be provided during normal business hours.

All work will comply with all ISO 9001 standards, NASA and OSHA safety standards. Requirements will include the compilation of TDO metrics and Customer satisfaction surveys.

4. **Period of Performance:**

The period of performance is Fiscal Year 16; 12-months

5. **Subtasks:**

3.1 – Crew Health and Safety Systems Operations

Subtask Overview:

Provide maintenance, internal technical support and continuous monitoring during normal business hours for all hardware and software in the Mission Extended Medical Enterprise (MEME), including Clinical Electrocardiogram (ECG) analysis systems, Virtual Private Network (VPN) connections to MEME resources, network communication between the MEME Environment and the Mission Control Center-Houston (MCC-H) in support of mission operations. MEME is a subset of the directorate Medical and Mission Information System which supports Crew Health and Safety.

Provide technical assistance as necessary with MEME related software upgrades to ACES computers in the JSC Clinic. Enable the implementation, maintenance and enhancement of electronic health data capture solutions for remote locations.

Provide secure backups, remote data archival, secure storage of MEME mission critical data in accordance with the Information Architecture, Infrastructure Operations (IAIO) Data Backup and Retention Policy and Procedure document. Continue implementation and Operation of the MEME Disaster Recovery (DR) site.

Provide software maintenance for the Advance Electrocardiograph (ECG) Monitoring Systems (AEMS) which provides real-time cardiac telemetry monitoring for crew members in the EVA suit. AEMS is in place in the Mission Control Center (MCC) to support the Surgeon Flight Control team. It is also in the Engineering Test Facilities Altitude Chambers to support the Human Test Support Group. Maintain the data display, and interface to the GE Medical Systems Apex Telemetry Monitoring Server and Clinical Information Center (CIC) for the altitude chambers. Full disclosure data from the CIC and supporting data are archived.

Ensure that the information security of the MEME Environment adheres to applicable government and industry standards. Develop and/or maintain Software Classification and Safety Criticality Determination IAW JPR 7150.2.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
3.1		**Crew Health and Safety Systems Operations**	
301		**Crew Health and Safety Systems Operations**	
301	1	The contractor shall provide maintenance, internal technical support and continuous monitoring during normal business hours for all hardware and software in the Mission Extended Medical Enterprise (MEME), including, Virtual Private Network (VPN) connections to MEME resources, network communication between the MEME Environment and the Mission Control Center-Houston (MCC-H) in support of mission operations. Provide technical assistance as necessary with MEME related software upgrades to ACES computers in the JSC Clinic. Enable the implementation and maintenance for remote locations.	Maintenance Plan. Quarterly Review.
302		**Advanced ECG Monitoring Systems**	
302	1	The contractor shall provide administration and configuration of the Altitude Chamber AEMS suite and GE hardware support once per quarter.	Maintenance Plan. Quarterly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
302	2	The contractor shall provide software configuration support during Crew and Thermal Systems Division (CTSD) dry and altitude chamber runs.	Technical Support and Resolution. Up to 4 dry runs and 4 altitude runs per period of performance.
303		**MEME Disaster Recovery**	
303	1	The contractor shall provide secure backups, remote data archival, secure storage of MEME mission critical data in accordance with the Information Architecture, Infrastructure Operations (IAIO) Data Backup and Retention Policy and Procedure document. Continue implementation and Operation of the MEME Disaster Recovery (DR) site.	Updated Data Backup Retention Policy and Procedure Document Status Report. Monthly.
304		**IT Security, Plans and Documentation**	
304	1	The contractor shall update the MEME Manual of Procedures annually and as required by system changes.	Updated MEME Manual of Procedures. 2Q16 and as needed.
304	2	The contractor shall update the MEME Disaster Recovery Plan annually and as required by system changes.	Updated MEME Disaster Recovery Plan. 2Q16 and as needed.
304	3	The contractor shall update the Configuration Management Plan for the MEME Environment annually and as required by system changes.	Configuration Management Plan. 2Q16 and as needed.
304	4	The contractor shall provide security assessments on IT project requests.	Documentation of security assessment for project. As needed, up to 12 per year.
304	5	The contractor shall collaborate with HH&P OCSO and other IT Security personnel for execution of IT security related data calls, assessments, certification and accreditation.	Completed Data Calls. As needed, up to 12 per year.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
304	6	The contractor shall provide updates to the applicable MMIS Security Plan documentation annually and as required by system changes.	Updated Security Plan information. 3Q16 and as needed.

3.2 – Cross Directorate Systems Operation

Subtask Overview:

Provide maintenance, internal technical support, and continuous monitoring during normal business hours for all hardware and software in the Systems Integration and Support Laboratory (SISL) and other non-Crew Health and Safety Systems with a specific emphasis on non-ACES/non-standard laboratory hardware and software.

Provide secure backups, remote data archival and secure storage of Cross Directorate Systems data in accordance with the Information Architecture, Infrastructure Operations (IAIO) Data Backup and Retention Policy and Procedure document. Support temperature monitoring of freezers at the Westland Bunker site.

Ensure that the information security of the Cross Directorate Systems Environment adheres to applicable government and industry standards. Develop and/or maintain Software Classification and Safety Criticality Determination IAW JPR 7150.2.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
3.2		**Cross Directorate Systems Operation**	
305		**Cross Directorate Systems Operation**	
305	1	The contractor shall provide maintenance, internal technical support and continuous monitoring during normal business hours for all hardware and software in the Systems Integration and Support Laboratory (SISL) and other non-Crew Health and Safety Systems with a specific emphasis on non-ACES/non-standard laboratory hardware and software.	Maintenance Plan. Quarterly Review.
305	2	The contractor shall provide secure backups, remote data archival and secure storage of Cross Directorate Systems data in accordance with the Information Architecture, Infrastructure Operations (IAIO) Data Backup and Retention Policy and Procedure document.	Status Report. Monthly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
305	3	The contractor shall provide security assessments on IT project requests.	Documentation of security assessment for project. As needed, up to 12 per year.
305	4	The contractor shall collaborate with HH&P OCSO and other IT Security personnel for execution of IT security related data calls, assessments, certification and accreditation.	Completed Data Calls. As needed, up to 12 data calls per year.
305	5	The contractor shall provide updates applicable to the MMIS Security Plan documentation annually and as required by system changes.	Updated Security Plan (SPSA0031). 3Q16 and as needed.
305	6	The contractor shall update the Disaster Recovery Plan annually and as required by system changes.	Updated Disaster Recovery Plan. 3Q16 and as needed.
305	7	The contractor shall provide daily and monthly reporting of IT software (SW) and hardware (HW) purchases to the HHIMS contractor in support of HH&P asset management.	IT SW and HW purchase information. Daily, Monthly.

3.3 – TSC Operations

Subtask Overview:

The Telescience Support Center (TSC) Operations subtask provides for Infrastructure and Operations support of the Telescience Support Center in support of ISS Medical Projects (ISSMP) Science Operations. The TSC provide ISSMP personnel and investigator teams the ability monitor and interact with the ISS crew real-time during ISSMP experiments activities. The TSC Operations also provides secure remote data access to authorized users via the Virtual Private Network (VPN) over the Internet, such as but not limited to, experiment file downlink, real-time data, displays and video and electronic logging access. This subtask also includes supporting and maintaining the TSC Emergency backup system (bTSC) at the Marshall Space Flight Center (MSFC) in event the primary system is off-line at the Johnson Space Center (JSC) facility.

TSC Facility Sustaining and Upgrades include sustaining, maintenance and upgrades required to keep the TSC facilities in JSC Building 30A, 30M, 9, 241 and TSC Remote annex along with the bTSC functional and prepared for mission support. This includes implementing Operating

Systems (OS) patches, upgrades, IT security directives and supporting unplanned mandated NASA Data Calls. The TSC Mission Support includes but is not limited to: troubleshooting and monitoring of TSC hardware and software performance; and acquisition, processing, distribution, display, and archival of data streams and experiment data, real-time telemetry and file data delivery to end users, and close out of mission data by providing the Increment data sets to the Life Sciences Data Archive (LSDA).

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
3.3		**TSC Operations**	
306		**TSC Mission Support**	
306	1	The contractor shall provide processed telemetry data sets via VPN secured internet access to the science investigator community based on each month's operations schedule.	11 Telemetry Datasets. Per the ISSMP Master Schedules Book.
306	2	The contractor shall provide Real-time telemetry data, processed data files, a Permanently Missing Information (PMI) report, and increment database to LSDA as Increment Closeout.	2 Real-time Datasets. Per the ISSMP Master Schedules Book.
306	3	The contractor shall provide TSC console monitoring and support for operations and simulations to assess system performance and to validate the accurate collection and dissemination of experiment science data.	11 Console Sessions, 4 Simulations. Per the ISSMP Master Schedules Book.
307		**TSC Facility Sustaining and Upgrades**	
307	1	The contractor shall manage and administer this TSC subtask along with sustaining the TSC facilities including, Obsolescence Maintenance Plan planning, procurement, property tracking. The contractor shall provide system patching, Symantec Anti-Virus (SAV) updates, software version migration, system health and status monitoring, and system's repair functionalities. The contractor shall provide systems & network administration to provide IT Security patches, check system logs & reports, NASA Data Calls request, Security Scanning, HSPD-12 implementation. The contractor shall also provide upgrade to the backup TSC at MSFC for emergency backup.	11 System Repairs, 11 Updates & Patches, 11 SAV updates, 11 NASA Data Calls, 11 Security Scan Cleanups. Per the ISSMP Master Schedules Book.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
307	2	The contractor shall provide systems and software upgrades to improve efficiency and to reduce the cost of operations and maintenance of the TSC.	2 TSC Major Upgrade Releases. Per the ISSMP Master Schedules Book.

3.4 – Life Sciences Data Archive (LSDA) Operations

Subtask Overview:

NASA's Life Sciences Data Archive (LSDA) is an active archive that provides information and data from 1961 (Mercury Project) through current flight and flight analog studies involving human, plant and animal subjects.

This subtask defines the deliverables for technical management, maintenance, and upgrades of the computer systems and infrastructure needed to ensure that archived data from JSC and ARC are successfully integrated into the Life Sciences Data Archive database and easily made available to the LSDA use community. This includes requirements for the maintenance, management, and upgrades for the computer systems and infrastructure that host the public LSDA website, the restricted LSDA website, and the restricted Life Sciences Data Warehouse (LSDW), as well as the LSDA developer's lab systems.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
3.4		**Life Sciences Data Archive (LSDA) Operations**	
308		**LSDA Operations**	
308	1	The contractor shall ensure required maintenance and integration efforts for the LSDA computer infrastructure including hardware and COTS software maintenance to support the LSDA infrastructure that is comprised of the public LSDA website, the restricted LSDA website, the restricted Life Sciences Data Warehouse (LSDW) and their associated computer infrastructure per NASA JSC Information Technology Security (NPD 2810.1D).	Maintenance Plan. Quarterly.
308	2	The contractor shall provide NASA with Web site statistics on usage of the Life Sciences Data Archive Web site.	Web User Statistics Reports. Monthly/Quarterly.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables and Schedule
308	3	The contractor shall provide technical support to the monthly meetings with ARC Life Sciences Data Archive personnel.	Completion of Action Items. As Required.

Attachment L – 3 – 4 TO-RFP-04 – Biomedical Operations

1. **Title of Effort: 4.0 Biomedical Operations**
2. **Date of Request: October 31, 2014**
3. **Statement of Work Task Description:**

This Task Delivery Order (TDO) identifies the Biomedical Operations activities to be completed during this period of performance (PoP). BR&ES Subtask 1 provides project management for Biomedical Laboratory Operations. Subtask 2 provides for the conduct of Biomedical Lab Operations Projects. During this PoP, the following areas are active in conducting Medical Assessment Testing (MAT) and in reporting results as defined in the Medical Requirements Integration Document (JSC 28913): Bone and Mineral, Immunology/Biochemical Analysis, Exercise Physiology and Countermeasures (ExPC), Neurosciences, Nutritional Biochemistry, and Radiation Biodosimetry. The contractor also participates in activities related to Countermeasures Systems (CMS). Subtasks 10 through 12 provide specific details for medical assessment testing conducted for European Space Agency (ESA), Japanese Aerospace Exploration Agency' (JAXA), and Canadian Space Agency (CSA) crewmembers. Subtask 13 provides for life sciences training for astronauts. Subtask 14 provides for astronaut Occupational Surveillance.

4. **Period of Performance: Fiscal Year 16 – 12 month Period of Performance**
5. **Subtasks**

Subtask 4.1 Project Management Support of Biomedical Laboratory Operations

This subtask provides for the project management of requirements related to medical operations tasks completed by the BR&ES.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.1		**Project Management Support of Biomedical Operations**	
401		**Project Management for Biomedical Laboratory Operations**	
401	1	The contractor shall develop draft presentation material to meet requests to BR&ES from other NASA Offices International Space Station (ISS) Mission Integration & Operations, ISS Vehicle, Extravehicular Activity (EVA), and ISS External Integration, etc.)	Up to 4 draft electronic presentations per PoP; quarterly as needed.
401	2	The contractor shall maintain spreadsheets that track MATs conducted by BR&ES.	Metrics spreadsheet, up to 12 updates per PoP Monthly
401	3	The contractor shall prepare estimates of costs for International Partner (IP) crew medical testing and prepare draft cost receipts	Up to 12 draft cost receipts per PoP Monthly

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
401	4	The contractor shall gather information and prepare draft presentation material for planning and budgeting.	Up to 12 draft electronic presentations per PoP Monthly as needed.
401	5	The contractor shall coordinate inputs from intramural and extramural sources for BR&ES planned publications.	Coordination for up to 1 publication per PoP Monthly as needed.

Subtask 4.2 Biomedical Lab Operations Projects

This subtask provides for the conduct of Biomedical Lab Operation Projects. Work Package 402 provides gathering of data and the development of evidence-based medicine documentation related to significant findings obtained from MAT and CMS hardware utilization leading to a publication supplement in Aviation Space and Environmental Medicine (ASEM).

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.2		**Biomedical Lab Operations Projects**	
402		**Development of publication supplement for Aviation, Space, and Environmental Medicine (ASEM)**	
402	1	The contractor shall provide technical information required to finalize the current draft of the publication supplement for these topic areas: • Dual x-ray absorptiometry (DXA) • Posture • Isokinetic exercise • Estimated VO_2 Max (Volume of Oxygen maximum exercise test) • Functional Fitness • Operational Tilt • Performance data obtained from flight surgeons	Inputs to publication, up to 1 page summary/topic area/PoP FY Q1, or as required.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
402	2	The contractor shall provide editorial expertise to finalize the current draft of the publication supplement.	Electronic edits and review of final supplement content. FY Q1 or as required.

Subtask 4.3 Bone & Mineral

The Bone and Mineral Laboratory (BML) provides comprehensive bone mineral and body composition testing and evaluation to NASA/JSC. DXA and Vertebral Fracture Assessment (VFA) are performed on all candidate, active, long duration, and retired astronauts along with astronaut surrogates and referrals from the Occupational and Flight Medicine Clinics. The referrals may include NASA and contractor personnel and astronaut dependents. Skeletal health reports following clinical review by contracted bone endocrinologist are provided to NASA detailing the results of the DXA and VFA testing. Astronauts are tested and followed long-term to document crew career skeletal health changes and provide crew skeletal re-flight certification data. Medical data are processed to evaluate trends in astronaut population for status reports and briefings by the NASA Lab manager/Discipline Lead to internal review boards and to convene clinical advisory boards.

The BML shall provide literature review of clinical related application of DXA and other bone testing and evaluation hardware. The BML shall provide electronic copies of older astronaut DXA reports to the Clinic.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.3		**Bone & Mineral**	
403		**Bone & Mineral – Medical Operations Support**	
403	1	The contractor shall complete testing, analysis and reports for monthly referral patients.	Test data, records, and reports, up to 15 tests per PoP Monthly

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
403	2	The contractor shall complete pre- and postflight testing of ISS crewmembers (Medical Evaluation Document Volume B (MEDB) 1.11) and corresponding reports.	Test data, records and reports, up to 20 tests per PoP Per MEDB/ Medical Requirements Integration Document (MRID) schedule Monthly, but varies depending upon specific ISS and Soyuz missions
403	3	The contractor shall complete triennial testing of all active astronauts and corresponding reports.	Test data, records and reports, up to 22 tests per PoP Per MEDB/MRID schedule
403	4	The contractor shall complete analysis and reports detailing long-term health.	Test data, records and reports, up to 10 per PoP Monthly
403	5	The contractor shall provide individual crew MRID briefing materials & report to NASA ISS flight surgeon and Biomedical Data Reduction and Analysis (BDRA) Epidemiologist after each ISS Increment or Augmentation Crew rotation, as required.	Analysis, report and briefing materials; report to include at a minimum data collected preflight through R+30 days, up to 6 per PoP. Provide report & briefing materials 35 days after landing. Postflight briefing to crewmember with flight surgeon, by lab manager upon request, up to 6 per PoP Briefing per schedule (approx. R+60 days)
403	6	The contractor shall complete literature reviews of clinical related application of DXA and other bone testing and evaluation hardware.	Literature review summary (Not To Exceed (NTE) 12 per PoP) Monthly, as needed
403	7	The contractor shall provide electronic copies of older astronaut DXA reports to the Clinic.	Medical reports, up to 8 ISS crewmembers and 20 triennial tests per PoP Monthly, as needed
403		Bone & Mineral – LSAH Support	
403	8	The contractor shall complete testing/analysis and corresponding reports for Lifetime Surveillance of Astronaut Health (LSAH) subjects.	Test data, records and reports, up to 25 subjects per PoP Monthly

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
403	9	The contractor shall process bone relevant data from MRIDs and from research for briefings to internal review boards by Bone Discipline Lead on risk surveillance.	Presentation material, statistical analyses, post-processing of surveillance data, as required. As required, per scheduled boards (e.g. Human Systems Risk Board (HSRB), Flight Activities Control Board (FACB), BR&ES).

Subtask 4.4 Immunology/Biochemical Analysis (IBA) Laboratory

The Immunology Laboratory performs Renal Stone Risk Assessment testing on all U.S. long-duration ISS crewmembers in conjunction with MAT sessions for Medical Requirement MEDB 8.1 (Nutritional Assessment). Assays performed by the Immunology Laboratory include oxalate, citrate and sulfate. This MAT-associated testing is performed at L-21/18 months, L-3/1 months, R+0, and R+20/30 days. The data from the MAT nutritional assessments are linked for each subject to provide a continuous time course. Following sample analysis, a full Renal Risk profile is generated for each subject.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.4		**Immunology/Biochemical Analysis Laboratory**	
404		**Immunology/Biochemical Analysis Laboratory - Clinical Testing and Operations**	
404	1	The contractor shall perform Renal Stone Assessments on long-duration U.S. crewmembers in conjunction with nutrition assessment (MEDB 8.1).	Completed sample analysis for ISS crewmembers: L-21/81 months, L-3/1 months, R+0, and R+20/30 days, up to 25 analyses per PoP. Within 30 days following sample collection.
404	2	The contractor shall perform data analysis for Renal Stone Risk Assessment testing in conjunction with nutrition assessment (MEDB 8.1) and deliver final reports and data to Nutrition Laboratory.	E-mail stating when completed data report was submitted to Nutrition Laboratory. Within 30 days following sample analysis.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
404	3	The contractor shall provide individual crew MRID briefing materials & report to the Nutritional Biochemistry Laboratory who delivers this to the ISS flight surgeon and BDRA Epidemiologist after each ISS Increment or Augmentation Crew rotation, as required.	Analysis, report and briefing materials; report to include at a minimum data collected preflight through R+30 days, up to 6 per PoP. Provide report & briefing materials 35 days after landing. Postflight briefing to crewmember with flight surgeon, up to 6 per PoP. Briefing per schedule (approx. R+60 days)
404	4	The contractor shall set up an annual preventative service subcontract with Dionex/ Thermo Electron North America per customer requirement to ensure the continual operation of the Dionex instrumentation for data analysis for Renal Stone Risk Assessment testing in conjunction with nutrition assessment (MEDB 8.1).	Arrangement of annual preventative maintenance subcontract for Dionex instrumentation, 1 per year. Prior to expiration date of current subcontract.

Subtask 4.5 Exercise Physiology

The Exercise Physiology and Countermeasures (ExPC) and Astronaut Strength Conditioning and Rehabilitation (ASCR) teams conduct Medical Assessment Testing, using defined Medical Evaluation Document Volume B protocols and procedures, and prepare and deliver testing reports. The specific tests are outlined in MRIDs MEDB 5.3 (Isokinetic Testing) and MEDB 4.1 (Cycle Ergometer Test/Aerobic Functional Capacity). The ExPC team participates in operations involving the Crew Health Care System (CHeCS). The ExPC team also conducts annual exercise stress tests on astronauts.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List
4.5		**Exercise Physiology**	
405		**Exercise Physiology - Clinical Testing and Operations**	

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List
405	1	The contractor shall conduct Isokinetic Muscle Function Physical Fitness Assessment Medical Requirement (MEDB 5.3) by quantifying muscle function on designated crew pre- and postflight, and prepare and submit MEDB 5.3 medical reports for flight surgeons. ASCR personnel will provide contingency support for MEDB exercise testing (isokinetic) as needed.	Data, summary reports, up to 2 preflight and 3 postflight tests for each U.S. crewmember assigned to ISS flights for up to 6 U.S. crewmembers per PoP. Per MEDB/ MRID schedule
405	2	The contractor shall conduct the Cycle Ergometer Physical Fitness Assessment MEDB 4.1 by preparing test documentation, quantifying aerobic status throughout designated missions on designated crew by collecting and delivering electrocardiogram (ECG) analysis, blood pressure, workload and oxygen consumption data (pre-, in- and post-flight), as well as prepare and submit MEDB 4.1 medical reports. ASCR personnel shall provide contingency support for MEDB exercise testing (aerobic testing) as needed.	Data, summary reports up to 2 preflight, up to 6 inflight for 6 month missions (up 10 inflight for 1 year missions), and up to 2 post flight for each U.S. crewmember assigned to ISS flights for up to 6 U.S. crewmembers per PoP. Per MEDB/ MRID schedule
405	3	The contractor shall provide MRID briefing materials for individual crew and inflight exercise reports to ISS flight surgeon as frequently as twice monthly and after each ISS Increment or Augmentation Crew rotation, as required.	MRID briefing material inputs, as required. Analysis and postflight briefing for crewmember to flight surgeon, up to 6 per PoP, to include at a minimum data collected preflight through R+30 days. Briefing per schedule (approx. R+60 days. Compile data reports and twice monthly briefings to flight surgeon, as required by flight surgeon.
405	4	The contractor shall facilitate crew health (as prescribed by ASCR personnel) activities in Star City.	Coordination of hardware with Star City personnel, as needed.
405		Exercise Physiology - Astronaut Stress Testing	
405	5	The contractor shall conduct annual exercise stress tests on astronauts and submit test results per MEDB 4.1.	Test data & records, up to 30 astronaut tests per PoP. Monthly as needed.

Subtask 4.6 Neurosciences

Neurosciences Laboratory personnel perform neuro-vestibular platform tests (i.e., MEDB 1.5) that provide an objective test of neurosensory re-adaptation to Earth's normal gravity following space flight. Measurement parameters for the medical requirement include a neurological assessment of postural equilibrium. The data is provided to the flight surgeon to facilitate the identification of postflight restrictions of daily activities (for example but not limited to stairs, driving a car, showering, etc.), and the determination of readiness of a crewmember to return to flight status.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.6		**Neurosciences**	
406		**Neurosciences - Clinical Testing and Operations**	
406	1	The contractor shall complete MEDB 1.5 data collection, reduction, analysis, and archival and prepare corresponding medical reports.	Test and data records for ISS Exps. 40/39S, 41/40S, and 42/41S (postflight only) and ISS Exps. 43/42S, 44/43S, 45/44S, 46/45S, and 47/46S (preflight only). Per MEDB/ MRID schedule
406	2	The contractor shall perform ongoing development and maintenance of analysis routines.	Data analysis routine updates, NTE 1 per mission
406	3	The contractor shall participate in the preparation of technical reports.	Draft technical reports, NTE 2 per PoP; draft report 30 days following request.
406	4	The contractor shall complete meta-analysis for risk assessment.	Data records, NTE 2 per PoP; 30 days after request
406	5	The contractor shall provide individual crew MRID analysis and report to flight surgeon after each data collection as required.	Analysis and report, up to 14 per PoP. Provide analysis and report within 24 hours of data collection.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
406	6	The contractor shall provide individual crew MRID briefing materials, analysis, data and report to LSAH and BDRA Epidemiologist as required.	Analysis, data, report and briefing materials, up to 14 per PoP. Provide data and report within 24 hours of data collection. Briefing materials, up to 6 per PoP. Provide briefing materials within 24 hrs after last data collection
406	7	The contractor shall maintain computerized dynamic posturography database.	Data records. 1 per mission; 30 days after completion of data collection

Subtask 4.7 Nutritional Biochemistry

The Nutritional Biochemistry Laboratory (NBL) team completes clinical nutritional assessments as part of MEDB 8.1 on ISS crew, including L-21/18 months & L-3 months pre-, R+0 in-, and R+30 postflight training, testing, and analyses. Nutritional assessment is required to determine adequacy of nutrient stores prior to flight, to assess nutrient intake and status during flight, and to ensure correction of nutritional status following flight. Assessment of body composition is required to determine changes in muscle and bone compartments during space flight.

Operational activities include training of crewmembers on the completion of a Dietary Assessment Questionnaire (DAQ) which determines typical dietary intake, and on completion of an inflight Food Frequency Questionnaire (FFQ) which allows near real-time determination of nutrient intake while crewmembers are on-orbit. Software updates of the FFQ, procedures for its use, and analysis and reporting of down-linked data are provided for each mission.

Biochemical testing for determination of nutritional status and renal stone risk are performed before and after flight. This includes ensuring ongoing assay reliability, methods development, instrument training and crossover, validation, and/or refinement. Laboratory assay accuracy and reliability are maintained through a quality control program. Laboratory safety and International Standards Organization (ISO) documentation are prepared and maintained. A MEDB 8.1 report of cumulative mission data for the flight surgeons and the Crew Medical Information System (CMIS) database is generated. Input to Medical Operations documentation, including technical reports, presentations, meetings (including the Multilateral Medical Operations - Nutrition Working Group (MMOP - NWG)), crew/flight surgeon briefings, and/or publications is provided.

Comprehensive dietary counseling is provided by a registered dietitian for clients referred from the JSC Clinic. Reports and recommendations are provided to flight surgeons and Flight Medicine staff as

required. The dietitian maintains updated reference materials for current information on nutrition, which is used during individual consultations and follow-up for astronauts and their dependents. Nutritional databases are updated for use in the evaluations of the nutritional value of flight foods and the food system(s), and recommendations for improvement are made.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.7		**Nutritional Biochemistry**	
407		**Nutritional Biochemistry - Clinical Testing & Operations**	
407	1	The contractor shall evaluate nutritional requirements for ISS crews, train crewmembers to complete DAQ and FFQ, and provide input to FFQ database maintenance and analysis of results from ISS flight FFQ.	Food Frequency Questionnaire databases, up to 4 during this PoP. Per ISS crew FFQ/MEDB/MRID schedule
407	2	The contractor shall update reference materials with current information and the nutrition databases used for nutrient analysis of flight foods and the food system(s).	Nutrition Data System for Research (NDS-R) database. Monthly as needed
407	3	The contractor shall provide dietary counseling per referral from JSC Clinic.	Reports provided to Flight Medicine. Up to 4 sessions per week
407	4	The contractor shall provide input to Medical Operations documentation and meetings (including the MMOP-NWG and crew/flight surgeon briefings).	Reports, PowerPoint presentations, telecom minutes. Monthly as needed, NTE 9 reports/presentations per PoP
407	5	The contractor shall provide input to technical reports, presentations, and/or publications.	Reports, presentations. Up to 12 per PoP as needed.
407	6	The contractor shall complete internal Test Readiness Reviews (TRRs), MEDB 8.1 sample processing and biochemical analyses, and maintain/develop assays, and also prepare and deliver corresponding MEDB 8.1 medical reports to the Mission Medical Repository SharePoint site as specified in the Data Submission Agreements.	Data and medical reports, up to 15 test sessions per PoP. Per ISS flight/MEDB/ MRID schedule.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
407	7	The contractor shall maintain MEDB 8.1 analytical test accuracy and reliability through a comprehensive quality control program.	College of American Pathologists (CAP) reports, American Proficiency Institute (API) inter-laboratory reports, Laboratory Information Management System (LIMS) Quality Control reports NTE 1 per PoP for each test.
407	8	The contractor shall complete quarterly quality control review for MEDB 8.1 biochemical analyses.	LIMS Quality Control reports, quarterly.
407	9	The contractor shall provide individual crew MRID briefing materials & report to ISS Flight surgeon and BDRA Epidemiologist after each ISS Increment or Augmentation Crew rotation, as required.	Analysis, report and briefing materials; report to include at a minimum data collected preflight through R+30 days, up to 6 per PoP. Provide report & briefing materials 35 days after landing. Postflight briefing to crewmember with flight surgeon, up to 6 per PoP. Briefing per schedule (approx. R+60 days)
407	10	The contractor shall maintain inventory of frozen blood and urine archived MEDB8.1 samples.	Blood and urine aliquots. Per ISS flight/MEDB/ MRID schedule

Subtask 4.8 Radiation Biodosimetry

The Radiation Laboratory team participates in and promotes the radiation protection program for NASA's astronauts. Aspects of this radiation protection program include collecting chromosome samples and storing the samples for analysis in the future.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.8		**Radiation Biodosimetry**	
408		**Biodosimetry Clinical**	

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
408	1	The contractor shall collect ISS preflight, postflight and follow up biodosimetry samples from US crewmembers (prime only)	Samples to be stored (NTE 11 crewmembers). 6 months before flight, 30 days after return and 6 to 18 months after return.

Subtask 4.9 Countermeasures System (CMS) Operations

This subtask involves participation in the development, testing, evaluation, and troubleshooting of CHeCS exercise countermeasures, data analysis and quality control and monitoring hardware and accessories on board the ISS. The hardware monitored also includes equipment designed or used by ISS International Partners (IP). The ExPC and ASCR teams participate in the development of contingency operations and provide inputs for fixes or improvements to flight hardware related to exercise countermeasures. The ExPC and ASCR teams also participate in the development of procedures related to new, modified or adjuncts to ISS exercise devices and exercise protocols, as needed, through completion of Activation and Check Out (A/CO). The ExPC team manages, synthesizes and archives CMS hardware and crew performance data. ExPC personnel participate in domestic and international travel in support of flight exercise countermeasures objectives according to approved budget.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.9		**CMS Ops**	
409		**CMS General Support**	
409	1	The contractor shall participate in CMS troubleshooting, contingency development, testing, and implementation. This includes review of anomalous exercise findings, System Problem Resolution Team (SPRT) meeting participation, revisions to exercise hardware or prescriptions to meet contingencies, and interacting with ASCR, Human Health and Performance (HH&P) management, Engineering Directorate, and/or ISS Program management personnel.	Inputs to SPRT or HH&P management. As required, up to 4 inputs per month.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
409	2	The contractor shall participate in the development of requirements and procedures (including A/CO), by exercise physiologists and with ASCR personnel, and participate in technical interchange meetings for new, modified and/or adjuncts to ISS exercise device(s), including IP exercise technologies.	Inputs to CMS Engineering. As required; no more than 2 inputs per month.
409	3	The contractor exercise physiologist and ASCR shall support and provide status reports and inputs to BR&ES management, HH&P, and ISS Program management, including but not limited to quarterly presentation inputs, Certification of Flight Readiness (CoFR) reviews, FACB overviews, etc.	Status reports, technical inputs, and/or presentations. As required; no more than 2 status reports/ inputs and/or presentations per month/per project.
409	4	The contractor exercise physiologist and ASCR shall review and provide inputs to CMS related change requests.	Change Request Inputs. As required; no more than 40 per PoP.
409	5	The contractor shall participate in Advanced Resistive Exercise Device (ARED) specific assessments of on-orbit use, including evaluation of proposed load monitoring technologies to be used in place of the ARED force plate.	Data review and analysis. Per ISS Exp. timeline
409	6	The contractor exercise physiologist and ASCR shall participate in aerobic exercise device (Treadmill 2 (T2), Cycle Ergometer with Vibration Isolation and Stabilization (CEVIS)) specific assessments of on-orbit use.	Data review and analysis. Per ISS Exp. timeline
409	7	The contractor shall complete a review and provide an assessment of the quality of the downlinked inflight data (for example but not limited to heart rate monitor (HRM) data).	Report providing assessment of downlinked data. Weekly, as required.
409	8	The contractor shall conduct the Exercise On-Orbit Strength & Conditioning Monitoring MEDB 5.2, as well as the development of exercise protocols, providing real-time mission inputs and recommendations in conjunction with the ASCR group.	Data, summary reports for U.S. crews assigned to ISS flights. Up to 8 U.S. crewmembers per PoP. Per MEDB 5.2/ MRID schedule, nominally twice a month

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
409	9	The contractor shall interface with CMS Engineering on ISS exercise reviews of data requirements and quality, procedures, contingencies, anomaly resolution, and work-around activities, and provide recommendations on hardware updates.	Technical inputs to CMS Engineering. Weekly, as required
409	10	The contractor shall conduct ground-based evaluations of candidate CMS operations crew heath monitoring devices, such as but not limited to HRMs.	Report providing assessment results. As required, up to 1 per PoP
409	11	The contractor shall interface with IPs and extramural partners to share information on CMS hardware and reports per interagency agreements.	Technical inputs to IPs and extramural partners. As required, up to 2 times a month
409	12	The contractor shall interface with CMS Operations community (Engineering, ASCRs, Integration, etc.) to transition relevant research outcomes to operations.	Technical inputs to CMS Operations. As required.
409	13	The contractor shall communicate regularly with CMS Operations Integration Lead and ExPC technical monitor (TM) concerning status, ongoing evaluations, and troubleshooting efforts.	Regular communication (verbal, e-mail). As required.

Subtask 4.10 Medical Assessment Testing for European Space Agency (ESA) Crewmembers

This subtask provides for the medical requirements certification testing, mission integration and schedule coordination, and preflight conditioning, training for inflight conditioning and postflight re-conditioning for ESA crewmembers. Crewmembers are tested preflight through L-10 beginning at the L-2 year mark per the Single Flow to Launch training flow.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.10		**Medical Assessment Testing for ESA Crewmembers**	
410		**Support for ESA Crewmembers**	

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
410	1	The contractor shall facilitate and/or conduct planned ISS Exps. 40/39S, 42/41S, and 46/45S testing of ESA crewmembers, and prepare and deliver medical reports to the Mission Medical Repository SharePoint site as specified in the Data Submission Agreements for the following: MEDB 1.5: Neurovestibular Platform Test, MEDB 1.11: Bone Densitometry, MEDB 4.1: Cycle Ergometer Test/Aerobic Functional Capacity, MEDB 4.3: Exercise Stress Test, MEDB 5.3: Isokinetic Testing, and MEDB E2.04: Nutritional Status Assessment.	Test data, records, and medical reports for: Up to 1 ISS Exp. 40/39S inflight and postflight (up to 1 MEDB 1.11 test session) Up to 1 ISS Exp. 42/41S crewmember inflight and postflight (up to 1 MEDB 1.5, 2 MEDB 4.1, 3 MEDB 5.3, and 1 MEDB 1.11 test sessions) Up to 1 ISS Exp 46/45S crewmember preflight only (up to 1 MEDB 1.5 test session) Per MEDB/ MRID Schedule.
410	2	The contractor shall provide coordination, integration, and scheduling of all medical assessment testing with crewmember.	Schedules for: Up to 1 ISS Exp. 40/39S crewmember postflight only Up to 1 ISS Exp. 42/41S crewmember preflight and postflight Up to 1 ISS Exp. 46/45S crewmember preflight only Up to 1 ISS Exp. 50/49S preflight only Per MEDB/ MRID schedule

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
410	3	The contractor shall provide preflight conditioning, training for inflight conditioning, and postflight reconditioning as needed.	Preflight conditioning, training for inflight conditioning and postflight reconditioning for: Up to 1 ISS Exp. 40/39S crewmember postflight reconditioning only Up to 1 ISS Exp. 42/41S crewmember preflight conditioning and training for inflight conditioning with up to 8 ARED training and up to 8 gym sessions/crewmember per PoP, and postflight reconditioning Up to 1 ISS Exp. 46/45S crewmember preflight conditioning and training for inflight conditioning with up to 9 ARED training sessions and up to 9 gym sessions/ crewmember per PoP Up to 1 ISS Exp. 50/49S crewmember preflight conditioning and training for inflight conditioning with up to 6 ARED training sessions and up to 6 gym sessions/ crewmember per PoP As needed.

Subtask 4.11 Medical Assessment Testing for Japanese Aerospace Exploration Agency (JAXA) Crewmembers

This subtask provides for the medical requirements certification testing, mission integration and schedule coordination, and preflight conditioning training for inflight conditioning and postflight re-conditioning for JAXA crewmembers. Crewmembers are tested preflight through L-10 beginning at the L-2 year mark per the Single Flow to Launch training flow.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.11		**Medical Assessment Testing for JAXA Crewmembers**	
411		**Support for JAXA Crewmembers**	
411	1	The contractor shall facilitate and/or conduct scheduled ISS Exps. 44/43SS and 48/47S testing of JAXA crewmembers, and prepare and deliver corresponding medical reports to the Mission Medical Repository SharePoint site as specified in the Data Submission Agreements for the following: MEDB 1.5: Neurovestibular Platform Test, MEDB 1.11: Bone Densitometry, MEDB 4.1: Cycle Ergometer Test/Aerobic Functional Capacity, MEDB 4.3: Exercise Stress Test, MEDB 5.1: Functional Fitness, MEDB 5.3: Isokinetic Assessment, and MEDB J4.03: Nutritional Status Assessment.	Test data, records and medical reports for: Up to 1 ISS Exp. 44/43S crewmember preflight (up to 1 MEDB 1.5, 1 MEDB 4.1, 1 MEDB 5.1, 1 MEDB 5.3, 1 MEDB J4.03, and 1 MED 1.11 test sessions) and inflight only. Up to 1 ISS Exp. 48/47S crewmember preflight only (up to 1 MEDB 4.1, 1 MEDB 4.3, 1 MEDB 1.11, and 1 MEDB J4.03 test sessions) Per MEDB/ MRID Schedule
411	2	The contractor shall provide coordination, integration, and scheduling of all medical assessment testing with crewmembers.	Schedules for: Up to 1 ISS Exp. 44/43S crewmember preflight only Up to 1 ISS Exp. 48/47S preflight only Per MEDB/ MRID schedule

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
411	3	The contractor shall provide crewmember preflight conditioning, training for inflight conditioning, and postflight reconditioning as needed.	Preflight conditioning, training for inflight conditioning, and postflight reconditioning for: Up to 1 ISS Exp. 44/43S crewmember preflight and training for inflight conditioning only (up to 6 ARED training sessions/crewmember and up to 12 gym sessions/crewmember per PoP) Up to 1 ISS Exp. 48/47S crewmember preflight and training for inflight conditioning only (up to 8 ARED training sessions/crewmember and up to 8 gym sessions/crewmember per PoP) As needed.

Subtask 4.12 Medical Assessment Testing for Canadian Space Agency (CSA) Crewmembers

This subtask provides for the medical requirements certification testing, mission integration and schedule coordination, and preflight conditioning training for inflight conditioning and postflight re-conditioning for CSA crewmembers. Crewmembers are tested preflight through L-10 beginning at the L-2 year mark per the Single Flow to Launch training flow.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.12		**Medical Assessment Testing for CSA Crewmembers**	
412		**Support for CSA Crewmembers**	

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
412	1	The contractor shall conduct planned testing and prepare and deliver medical reports to the Mission Medical Repository SharePoint site as specified in the Data Submission Agreements for ISS Exp. CSA crewmembers, which includes: MEDB 1.5: Neurovestibular Platform Test, MEDB 1.11: Bone Densitometry, MEDB 4.1: Cycle Ergometer Test/Aerobic Functional Capacity, MEDB 4.3: Exercise Stress Test, MEDB 5.1: Functional Fitness, MEDB 5.3: Isokinetic Testing, and MEDB C1.03: Nutritional Status Assessment.	Test data, records, and medical reports for: Up to 1 preflight data collection session for only 1 MEDB test for 1 ISS Exp. CSA crewmember as needed. Per MEDB/ MRID Schedule.
412	2	The contractor shall provide coordination, integration, and scheduling of all medical assessment testing with crewmember.	Schedules for: Up to 1 ISS Exp. CSA crewmember preflight only as needed. Per MEDB/ MRID Schedule.
412	3	The contractor shall provide preflight conditioning, training for inflight conditioning and postflight conditioning as needed.	Preflight reconditioning and training for inflight conditioning for: Up to 1 ISS Exp. CSA crewmember for up to 5 preflight gym sessions only. As needed.

Subtask 4.13 Life Sciences Training for Astronauts

The contractor develops an overview and outline of life sciences training, requested by the Astronaut Office for unassigned crewmembers and conducts astronaut training classes as needed. This training is designed to ensure crewmembers acquire skills to properly execute procedures for biological payloads and reduce training time required during the assigned mission training flow. The contractor provides veterinary support during activities involving animals or upon request by the NASA chief veterinarian.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.13		**Life Sciences Training for Astronauts**	
413		**Biomedical Basics Training for Astronauts**	
413	1	The contractor shall conduct general science skills training for crewmembers.	Up to 4 per PoP. PoP
413		Animal Handling Training for Astronauts	
413	2	The contractor shall conduct astronaut training in animal handling, as needed.	Training sessions, up to 4 per PoP As needed

Subtask 4.14 Occupational Surveillance

The contractor shall provide ergonomic, injury analyses, and surveillance expertise. The contractor shall help standardize and improve the data collection, reporting, and storage process for crew related EVA activities and injury tracking. The contractor shall work in conjunction with the NASA technical monitor to provide in depth ergonomic analyses of past EVA related crew injuries. Specifically, the contractor shall use crew anthropometry data, including volumetric analyses to compare crew EVA related shoulder injury cases to non-injured but comparable EVA trained crews. The contractor shall conduct worst case ergonomic analyses and report anthropometric and strength-based findings on crew risk of Neutral Buoyancy Laboratory suited injury.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
4.14		**Occupational Surveillance**	
414		**Injury Tracking Standardization**	
414	1	The contractor shall provide monthly status updates to Crew Health & Safety management.	Status update, up to 12 presentations per PoP Monthly.
414	2	The contractor shall define disconnects and gaps between NASA and external organizations' (industry, other government agencies, athletics, military) injury surveillance tracking methods.	Draft summary of differences between NASA and other organizations, up to 1 per PoP. FY Q1.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables List and Schedule
414	3	The contractor shall develop a best practice EVA suit injury surveillance method including a draft of all data entry fields, concept of operations and software requirements.	Draft report/presentation on proposed preliminary EVA injury surveillance method, up to 1 per PoP. FYQ2
414	4	The contractor shall refine preliminary EVA suit injury surveillance method in conjunction with representatives from the Anthropometry and Biomechanics Facility (ABF), ASCR team, flight surgeons, Mission Operations Directorate, Safety, and Engineering, and/or other stakeholders, as needed.	Draft report/presentation on proposed refined EVA suit injury surveillance method, up to 1 per PoP. FYQ3
414	5	The contractor shall draft a software development and verification plan with the programmer for the EVA suit injury surveillance method.	Software development and verification plan, up to 1 per PoP FYQ3
414	6	The contractor shall conduct a test and usability analysis of the preliminary EVA suit injury surveillance software.	Summary of software evaluation, up to 1 per PoP. FY Q4
414		**Shoulder Injury Analyses**	
414	7	The contractor shall review Neutral Buoyancy Laboratory shoulder injury cases and control group cases with NASA TM and flight surgeons for all crewmembers.	Progress summary, up to 12 per PoP. Monthly as needed.
414	8	The contractor shall conduct in-depth ergonomic analyses of shoulder injury by comparing crew injury data to anthropometric and volumetric data to understand the factors associated with the risk of injury.	Status report, up to 2 per PoP. FYQ3 and FYQ4

Attachment L – 3 – 5 TO-RFP-05 – Environmental Sciences

1. **Title of Effort: 5.0 Environmental Sciences**
2. **Date of Request: October31, 2014**
3. **Statement of Work Task Description:**

The contractor provides support for the Environmental Sciences areas of Microbiology, Toxicology, Air/Water Quality, and Environmental Health. The contractor reviews and provides feedback for the commercial crew and multi-purpose crew vehicle programs to ensure that relevant environmental requirements are implemented appropriately.

For the area of Microbiology, this work includes the analysis of ISS modules, ISS ECLSS systems, and flight hardware to ensure compliance with NASA requirements. This support includes diagnostic microbiological analyses and assessment of astronauts, astronaut dependents, and flight-related food. The laboratory provides technical assistance to flight and ground programs including biosafety assessment of payloads. Support includes preparations required for preflight readiness reviews and post flight briefings. The contractor will also support ground and flight based research projects relevant to NASA goals.

Air and water pollutants must be controlled in space vehicles to protect the health and performance of the crew. The contractor supports control measures that include the toxicological hazard assessment of all chemicals present in the vehicle, constraint of materials off gassing to accepted standards, the setting of exposure standards that protect crew health and performance, and monitoring of the air and water to ensure that contaminant levels do not exceed standards. The contractor performs pre-flight science testing and verification of monitoring hardware as well as post-flight assessment of the hardware performance and generated data. Monitoring and sampling of air and water will be sufficiently rapid and comprehensive to enable the programs to deal with accumulation of toxic pollutants as well as sudden releases of pollutants from payloads, systems, and fires. The contractor also supports relevant research, such as identification and assessment of technologies that address and advance NASA capability to provide a safe environment for the crew.

At the Johnson Space Center the contractor will operate an Environmental Health Laboratory for the purposes of performing chemical and physical analyses of industrial hygiene, selected environmental, and breathing gas samples. All samples from collection to final report stage will be conducted under either project-specific or media-specific Sampling and Analysis Plan and Procedures (SAPP), Quality Assurance Plans and Procedures (QAPP), or work instructions for routine sampling.

The contractor will comply with all ISO 9001 standards and requirements including the compilation of TDO metrics. Customer satisfaction surveys will be conducted regularly to assure quality objectives are achieved.

4. **Period of Performance: Fiscal Year 16 – 12 month Period of Performance**
5. **Subtasks**

Subtask 5.1 Microbiology ISS Support

Description: The contractor provides: 1) diagnostic microbiological analyses and assessment of astronauts and astronaut dependents; 2) environmental monitoring and assessment of the ISS modules and payloads/hardware; 3) microbiological analyses of food and water; and 4) sample collection and analyses of environmental and clinical samples from a variety of sources at the Johnson Space Center. This support is ongoing and encompasses preflight, in-flight, and post-flight mission phases culminating in a final

increment-specific mission report. The contractor will maintain and/or acquire the necessary reliable equipment to support and improve operational efficiencies both in the laboratory and aboard ISS. The contractor will review and modify requirements for ISS environmental testing and investigate the use of molecular methodologies for in-flight analysis. The contractor must provide specialized response to flight anomalies. All data obtained from these analyses are maintained in a comprehensive and secure database. The contractor will provide administrative, intellectual, and technical support for all ISS Increments/Expeditions. All support will be in accordance with the Medical Operations Requirements Document (MORD), Astronaut Medical Evaluation Requirements Document (AMERD), and relevant ISS documentation. Support includes preparations required for preflight readiness reviews and post-flight briefings in addition to requirement development and maintenance of all programmatic documentation.

The contractor will provide technical and administrative assistance to the operation of the JSC Biosafety Review Board. This will include maintenance of schedule for regular meetings (quarterly) of the board including preparation of agendas, attendance records, and minutes of the meetings, etc. Additionally, the contractor will be a member of the board and provide technical support and assistance on biosafety issues. The contractor will provide technical and administrative activities in support of the JSC Payload Safety Review Panel (PSRP) including meeting attendance and ensure compliance of all biosafety related issues with International Partners of the ISS. The contractor will support coordination and take part in onsite annual inspections of JSC laboratory facilities. The contractor will maintain an inventory of all biosafety level 2 agents which are kept on-site at JSC. The contractor will maintain a database that can be accessed via the internet of all biological hazards reviewed.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
5.1		**Microbiology ISS Support**	
501		**ISS Support**	
501	1	The contractor shall provide microbiology support for all ISS increments in accordance with the MORD (SSP 50260, latest revision)	ISS evaluations, at least 4 per PoP
501	2	The contractor shall provide diagnostics for ISS astronauts and their dependents. Sample collection and analyses shall be conducted at JSC facilities. Analytical capabilities shall include identification and antibiotic susceptibility testing of bacteria and fungi.	Diagnostic Analyses, as required; ~15 patients per PoP

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
501	3	The contractor shall provide preflight environmental sample collection from ISS bound flight hardware. The contractor shall collect and analyze surface samples from ISS flight hardware. Samples shall be collected during bench reviews at JSC. All analyses shall be conducted at JSC.	Surface/air samples and analyses, no greater than 15 sets of samples per PoP
501	4	The contractor shall provide analyses of environmental samples and water specimens collected from ISS. ISS specimens are returned to JSC for analyses. Samples shall include air, surface, and water samples. Water samples shall include contingency samples collected to investigate anomalies. Analyses shall include both bacteria and fungi.	Water, air, and water sample analyses, no fewer than 20 per PoP
501	5	The contractor shall provide administrative and technical assistance for ISS operational meetings (e.g., readiness reviews). The contractor shall also provide technical input for ISS systems and design reviews including Failure Investigation Team (FIT) discussions associated with anomalies. This includes attendance, keeping up with schedule of reviews, presentations and keeping a permanent record.	Meeting Records, 2 per month per PoP
501	6	The contractor shall maintain microbiology requirements through semi-annual review and updating ISS documentation (e.g., MORD, AMERD). Recommended changes provided in writing to TM.	Documentation updates, up to 2 per PoP
501	7	The contractor shall provide training for crew, flight surgeons, and biomedical engineers on Crew Health Care System (CHeCS) related hardware.	Training events, up to 3 per PoP
501	8	The contractor shall maintain a secure and comprehensive database on all crew and ISS associated sample analyses.	Database updates, 1 per month per PoP
501	9	The contractor shall provide microbiology expertise to flight hardware engineers in the construction and quality control for ISS hardware resupply.	Engineering consultations, up to 6 per PoP

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
501	10	The contractor shall participate with flight hardware engineers in meetings, review of documentation, presentation of materials for board review, and review of test plans.	Meeting participation, up to 1 per month per PoP
501	11	The contractor shall analyze food samples as defined in the General Specification: Microbiological Specification and Testing Procedure for Commercially Sterile Foods (SD-T-0252) and General Specification: Microbiological Specification and Testing Procedure for Foods which are not Commercially Sterile Foods (SD-T-0251). Food samples (both international and domestic) and environmental (air and surfaces) samples from the food preparation area are delivered for analyses in accordance with the MORD (JSC 13956). Foods include flight foods and food lots.	Food Reports, up to 5 expeditions as required.
501	12	The contractor shall serve as a member of the JSC Biosafety Review Board and provide technical expertise and administrative assistance to the operation of the board including meeting notices, agendas, attendance records, and minutes to the meetings.	Participation in the Biosafety Review Board (BRB) as a voting member. Agendas, records of attendance, and minutes, quarterly per PoP
501	13	The contractor shall maintain an inventory of all biosafety level 2 agents at JSC in a secure electronic database, accessible via the internet.	Biosafety Level II Database, updated as required.
501	14	The contractor shall organize, conduct, and document annual inspections of JSC laboratories to ensure that appropriate biosafety measures are in place.	Lab inspection report 1 per PoP
501	15	The contractor shall review and provide assessments of the biological hazards associated with flight hardware and JSC site requests reviewed by the Payload Safety Review Panel. These assessments shall be maintained in a database.	Biological hazards database, updated as required.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
501	16	The contractor shall provide sample collection and analyses of environmental samples provided by the Occupational Health Office. Samples may include air, surfaces, and water from various sources onsite experiencing air and water quality problems	Sample analyses, up to 20 per PoP, scheduled as required.
501	17	The contractor shall provide diagnostic sample analyses from the Occupational Health Clinic. Specimens may be from Center workforce and special groups such as food workers and plumbers. Samples may be typical diagnostic specimens such as throat urine. The contractor shall analyze specimens for appropriate agents such as pathogenic bacteria, fungi.	Diagnostic analyses, up to 20 per PoP, scheduled as required.

Subtask 5.2 Microbiology Biomedical & Environmental Research

Description: The contractor will provide support for ground and flight-based research studies at the direction of the Technical Monitor and consistent with approved funding. The contractor will also provide support in preparation of data for presentations to national and international scientific meetings, preparation of data for publication in peer-reviewed scientific and technical journals, and interaction with external scientific colleagues to complete science objectives.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
5.2		**Microbiology Biomedical and Environmental Research**	
502		**Biomedical and Environmental Research**	
502	1	The contractor shall maintain flight investigations current status by complying with periodic reviews. This includes data reviews and presentations.	Reviews, as required, up to 8 per PoP
502	2	The contractor shall provide research capabilities and appropriate materials to complete small scale research investigations, as required.	Research Development, as required, up to 2 per PoP

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
502	3	The contractor shall provide technical and administrative support for presentations to NASA officials as requested.	Report Inputs, as required, up to 1 per month
502	4	The contractor shall prepare data for presentations to national and international scientific meetings prepare data for publication in peer-reviewed scientific technical journals, and interaction with external scientific colleagues to complete science objectives.	Presentation Inputs, as required, up to 4 per PoP
502	5	The contractor shall develop and test a microbial detection system using state-of-the-art, real-time biosensor technology.	Research Development, as required, up to 2 per PoP

Subtask 5.3: Toxicology and Environmental Chemistry

Environmental data and associated risk assessment/risk communication is critical for decision making on ISS and other spaceflight missions in regard to both crew health protection and ISS ECLSS function. . The contractor will provide analytical support and expertise in the analysis of spaceflight air, water, food, and other relevant samples, and in the interpretation and assessment of these data, as appropriate. Ground analysis of returned archival samples and assessment of real time monitoring data will be sufficiently rapid and comprehensive to enable the ISS program to deal with accumulation of toxic pollutants as well as sudden releases of pollutants from payloads, systems, and fires. Acquisition of chemical information and dissemination of results will require maintenance of a web site.

Operational support includes preparation of specific monitoring hardware and resupply to support for anomaly resolution teams. Contractors will coordinate with ECLSS in trending environmental status on ISS and will work to keep stakeholders aware of emerging challenges. In regard to ISS support, these contractor responsibilities will require a high level of integration and cooperation with many elements of the ISS program supported by the laboratories and many experts inside and outside the agency.

Toxicological hazard assessments will be based on comprehensive information obtained from various payload organizations as well as international and commercial partners. The contractor will ensure laboratory readiness for materials or assembled item off-gas testing that involves assessment of raw materials, flight hardware provided by other organizations or whole module off-gas testing.

In addition, the contractor will develop and update exposure standards (SMACs/SWEGs) and will provide review and feedback for the commercial crew and multi-purpose crew vehicle programs to ensure that relevant environmental requirements are implemented appropriately.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
5.3		**Toxicology and Environmental Chemistry**	
503		**Toxicology and Environmental Chemistry**	
503	1	The contractor shall provide ground-based science testing and calibration for the Carbon Dioxide Monitor (CDM) and Compound-Specific Analyzer for Combustion Products (CSA-CP). Operations support shall also be provided for these instruments. Additionally, the contractor shall perform functional tests on monitors and samplers to insure integrity following engineering tests.	Up to 2 calibrated CDM units/year and 4 Compound Specific Analyzer – Combustion Products (CSA-CP) units per kit; schedule is PoP
503	2	The contractor shall provide science certification and bump tests on newly purchased carbon dioxide monitors	Up to 3 CDMs, schedule is PoP.
503	3	Provide proofed archival samplers (GSC and formaldehyde badges) for each mission, and analyze the samplers upon return to JSC. Extra GSC samplers shall be prepared for new module 1st entry and on-orbit contingency samples. Report results of GSC and formaldehyde badges including quality control findings, sampling anomalies, and T values within 2 months of sample return to the lab.	Up to15 GSCs and 48 formaldehyde badges Laboratory report for each ISS sample return mission per mission schedule, 2 months from samples received in lab per PoP
503	4	The contractor shall investigate new methods and technologies for improvements in environmental monitoring by participation at conferences and meetings, as allowed.	Memorandum or technical papers, schedule per PoP
503	5	The contractor shall provide support for the Water and Air Quality Subgroups by responding to action items from the NASA TM, and supporting conference calls, MMOP meetings, Integration Team meetings, air/water teleconferences as well as TIMs with International Partners.	Meeting minutes, schedule per PoP.
503	6	A contractor hardware specialist shall be available to respond to mission related questions.	Monthly call list Maintenance of on-call schedule in Fox; response shall be provided within 2 hours of the request.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
503	7	The contractor shall analyze AQM data from the on orbit units and report results to the NASA TM.	Weekly Report summarizing on orbit AQM data, weekly AQM report.
503	8	The contractor shall provide for cross training of personnel within the laboratory.	Personnel identified and training in the laboratory begun, schedule per PoP
503	9	The contractor shall support specialized NASA TM request related to Toxicology. (Examples of tests include: an Off Gas Test (OGT) of ISS hardware, method development, or an additional compound added to the target list, as per funding restrictions).	Report, up to 2 as directed by NASA Toxicologist.
503	10	The contractor shall provide the necessary support for whole module / vehicle off-gas testing and preflight air (e.g. Orbital). This support may include travel to the test site, preparation of samplers, analysis of samples, and generation of report of analytical results.	Report of analytical results submitted to NASA, up to 4 flights as required.
503	11	Contractor shall provide support for document review for CCiCAP and CPC.	Input provide to NASA TM, as required per PoP
503	12	The contractor shall initiate pre-flight qualification testing of AQM units as necessary. (Including pre work for compound characterization)	N/A, schedule per PoP
503	13	The contractor shall coordinate monitoring of the chemical water quality at the potable water storage tank(s) and points of consumption on the ISS through in-flight water quality sampling and in-flight analyses performed with the EHS TOCA and CWQMK. This effort shall include review of on-orbit water sampling and analysis schedules to ensure compliance with the ISS MORD, and of execute notes, water sampling notes and crew procedures, as requested. The contractor shall also review and interpret in-flight TOCA and CWMK water quality data, including comparison to archival sample results, and provide water quality inputs for ISS Increment Certificate of Flight Readiness (CoFR) presentations as requested.	In-flight sampling and analysis schedule input, and comments on in-flight sampling and analysis procedures and execute notes; TOCA and CWQMK data review and interpretation and CoFR inputs, schedule input once per ISS Increment as requested. Procedures and execute notes comments up to 1 per month, as requested.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
503	14	The contractor shall provide scientific expertise for monitoring the performance and operation of ISS TOCA, CWQMK, and EHS water sampling hardware, The contractor shall participate in Medical Operations ISS crew debriefs, operations tag-up meetings and SPRT meetings, project team status meetings, and hardware Tiger Team meetings as requested, as well as troubleshooting EHS hardware anomalies, reviewing Mission Action Requests or CHITS, and participating in FIT or ART meetings, as requested. This effort shall also include hardware requirements updating and analysis of samples in support of ground testing, as requested.	Technical recommendations, data, and analytical reports, 1 Operations Tag-up and up to 2 SPRT meetings / month; 1 ISS Crew debrief/Increment; Project team status meetings up to 1 per week as requested. Analysis of up to 10 samples / PoP as requested. Review of up to 2 CHITs / month; up to 3 Tiger Team, FIT or ART meetings / month.
503	15	The contractor shall coordinate transport of ISS archival water samples from the landing site or International Partners laboratories back to JSC and analyze the water samples for chemical acceptability according to applicable ISS water quality requirements. Any out-of-specification findings shall be reported immediately to the TM. The contractor shall review all analytical data to ensure compliance with ISO-9001 quality requirements and maintain a laboratory information management system to track samples and archive analytical results.	Preliminary and Final Analytical Reports, up to 2 Soyuz and 2 SpaceX flights/ PoP and up to 8 samples per flight. Final reports due 2 months after samples received in laboratory.
503	16	The contractor shall analyze nutritional content of ISS food samples.	Summary Analytical Report, Quarterly reports / PoP. Up to 40 samples / PoP.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
503	18	The contractor shall participate in meetings and provide technical recommendations concerning operation and maintenance of ISS air systems and water supply and water recovery systems, ISS PWD, and the ISS waste collection system, as requested. The contractor shall participate in troubleshooting of in-flight anomalies, including review of Mission Action Requests or CHITs and participation in FIT or ART meetings, as requested. The contractor shall also review change requests and analyze water/air samples, as requested. The contractor shall provide administrative, intellectual, and technical expertise for all ISS Increments/Expeditions to ensure that ISS potable water quality, air quality, and monitoring requirements are maintained consistently in all applicable ISS program documents. This effort shall include preparations required for preflight readiness reviews and post-flight briefings, requirements updating, and maintenance of all applicable programmatic documentation, as requested.	Technical recommendations, data, and analytical reports (D), Up to 4 meetings briefings or reviews / month as requested. Analysis of up to 15 samples / PoP as requested. Final reports due 2 months after samples received in laboratory. Review of up to 4 change requests and 2 CHITs / month as requested; Attend up to 2 FIT or ART meetings / month as requested.
503	19	The contractor shall prepare weekly and monthly progress reports.	Weekly reports and monthly report inputs, as required.
503	20	The contractor shall participate in UPA Precipitation Prevention Project status meetings and TIMs, review test plans and provide technical expertise to evaluate precipitation prevention strategies.	Technical recommendations, Review of up to 2 test plans & / PoP; Up to one project meeting per week and up to 1 TIM / PoP.
503	21	The contractor shall perform analyses on preserved urine samples, urine brine samples, pre-treat solution samples and other relevant ISS urine samples as requested.	Analytical reports, Analysis of up to 20 samples / PoP. Final reports due2 months after samples received in laboratory.
503	22	The contractor shall fabricate reagent and analysis cartridges to resupply the CWQMK.	Up to one each of the silver, iodine, and total iodine reagent cartridge pack assemblies per PoP as requested.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
503	23	The contractor shall monitor the quality of water delivered to the ISS by Progress, ATV, HTV, and CTVs by reviewing analytical reports of water quality, and analyzing water samples for acceptability according to applicable ISS water quality requirements.	Preliminary and Final Analytical Reports (D), up to 1 ATV and 1 HTV flight, up to 2 Progress flights, and up to 2 CTV flights / PoP as requested, and up to 3 samples / flight. Final reports due 2 months after samples received in laboratory.
503	24	The contractor shall continue the study evaluating the shelf life of iodinated water stored in three ICWC units returned from ISS.	Water sample analytical reports, up to 10 samples and 1 report/ PoP as requested. Interim reports due 2 months after sample collection
503	25	The contractor shall participate in external proficiency testing (PT) to demonstrate laboratory competency.	Water Supply and Water Pollution PT water sample sets; Proximates & Minerals food sample sets, water (quarterly), food (bi-monthly)
505		**Toxicology & Requirements Support**	
505	1	The contractor toxicologist shall maintain, verify, and update hazardous materials databases (Hazardous Materials Summary Table (HMST) and Hazmat) for each up and each down flight for all known chemicals aboard visiting vehicles to ISS.	Memorandum, per mission schedule per PoP
505	2	The contractor shall submit a revised version of JSC 26895 to the NASA Toxicologist (Toxicology Assessment Document)	Draft Document, schedule per PoP
505	3	The contractor toxicologists shall be available to respond to requests from ISS operations stakeholders about Tox hazard levels of manifested hardware.	Memorandum (up to 3 requests, responses shall be provided within 2 weeks), schedule per PoP
505	4	The contractor toxicologists shall propose new compounds for SMAC/SWEG development and work to develop toxicological assessment of assigned compounds for NRC review	Draft Document (up to 5 SMAC/SWEG documents), schedule per PoP
505	5	A contractor toxicologist shall be available to respond to mission related questions.	Monthly call list Maintenance of on-call schedule in Fox, response shall be provided within 2 hrs of the request.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
505	6	The contractor shall provide toxicological expertise/input to BMEs to assist in flight rule development/updates	Technical recommendations, as requested.
505	7	The contractor shall participate in meetings and provide technical recommendations concerning operational toxicological concerns (e.g. toxic release, unidentified hazards, fire, etc.) as requested. The contractor shall participate in troubleshooting of in-flight anomalies, including review of Mission Action Requests or CHITs and participation in FIT or ART meetings, as requested. The contractor shall also review applicable change requests.	Technical recommendations, data, and analytical reports (D), up to 4 meetings briefings or reviews / month as requested. Review of up to 4 change requests and 2 CHITs / month as requested; Attend up to 2 FIT or ART meetings / month as requested.
505	8	The contractor shall support relevant meetings and provide document reviews to ensure that relevant science requirements are appropriately considered for MPCV and Commercial flight progRqmt.	Technical recommendations assessments, and comments, up to 4 major document reviews, Tox assessment as needed

Subtask 5.4 Environmental Health Laboratory

The Contractor will operate an Environmental Chemistry Laboratory onsite at JSC that will include capabilities for performing chemical and physical analyses of: Industrial Hygiene/Occupational Health. This work supports analysis of potable water, waste water, asbestos, airborne solvents and metals, and paint chip samples.

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
5.4		**Environmental Health Lab**	
504		**Environmental Health Lab**	

WP No.	Rqmt. No.	Requirements/Tasks	Deliverables and Schedule
504	1	The contractor shall maintain a Laboratory Information Management System (LIMS). The Contractor shall maintain the active and archived analytical data records. The Contractor shall ensure that the LIMS is capable of exporting data in a NASA JSC supported commercial off the shelf (COTS) software, i.e. Access, Excel, for statistical manipulation.	As requested.
504	2	The contractor shall provide and manage a comprehensive Quality Assurance and Quality Control program consistent with laboratory accreditation requirements.	As requested
504	3	The contractor shall analyze Industrial Hygiene/ Occupational Health samples including mold/fungi, air cassettes, paint chips, surface wipes, passive dosimeters, and sorbent tube samples. The contractor shall document and maintain a strict "Chain-of-Custody" for all samples.	Report to requester, Up to 300 samples per PoP, as requested.
504	4	The contractor shall analyze asbestos in bulk materials and air samples.	Report to requester, up to 900 samples per PoP, as requested.
504	5	The contractor shall receive and deliver potable water samples to the JSC Microbiology Lab in support of the JSC drinking water monitoring program and ensure proper reporting of results to the customer.	Report to requester Up to 500 samples per PoP, as requested.
504	6	The contractor shall analyze compressed breathing gas samples submitted by or through Occupational Health and Industrial Hygiene.	Report to requester Up to 500 samples per PoP, as requested.

Attachment L – 3 – 6 TO-RFP-06 – Spaceflight Clinical Operations

1. **Title of Effort: 6.0 Spaceflight Clinical Operations**
2. **Date of Request: October 31, 2014**

3. **Statement of Work Task Description:**
   Spaceflight Clinical Operations is divided into two sub-tasks, Mission Medical Operations and Mission Operations Support, which contain 16 total work packages. These tasks and work packages detail the requirements necessary to support Space and Clinical Operations objectives, including flight surgeon (FS) capabilities to support International Space Station(ISS), biomedical engineer operations; development and maintenance of medical requirements documentation and implementation plans; FS, BME, astronaut, and operational support personnel training; integration of Medical Assessment Testing (MAT) and data collection; procurement of Direct Return and Star City medical equipment; the coordination and support of multilateral meetings, creation and maintenance of emergency planning documentation, and creation and maintenance of contingency plans for human spaceflight.

   The contractor will comply with all International Organization for Standardization (ISO) 9001 standards and requirements including the compilation of Task Delivery Order (TDO) metrics. The contractor will also comply with all NASA and Occupational Safety and Health Administration (OSHA) safety standards.

   This Task Delivery Order assumes up to 4 ISS launch and landing cycles per FY. Additionally, coordination for future flights not occurring in a given FY will be supported due to training of assigned astronauts in preparation for a mission.

4. **Period of Performance: Fiscal Year 16 – 12 month Period of Performance**
5. **Subtasks**

Subtask 6.1 Mission Medical Operations
The management of this subtask will require supervisory, operational, and administrative activities. The range of work covers tasks and duties performed in support of ISS missions, Star City medical operations, Moscow medical operations, and ISS crew surgeons. Major activities include space medicine support of crew training operations in Star City, Russia and medical support to NASA personnel deployed to Moscow, Russia.

Mission Medical Support and Moscow Medical Support
ISS Medical and Mission support is centered on providing additional flight surgeon (FS) capabilities to support ISS missions. A great deal of this work will involve working in Star City, Russia and supporting missions in the Mission Control Center (MCC) at JSC. Training to support at these two locations will be required and will account for a portion of this task.

Physician support will be provided in Moscow, Russia to support NASA personnel assigned to Mission Control Center - Moscow (MCC-M) and surrounding facilities. In the event of a medical emergency

personnel will help the Star City surgeon facilitate medical evacuation of a patient. Moscow medical support personnel (physician and/or nurse(s)) will travel to Kazakhstan to support launches and landings.

Technical assistance to will be provided for key project assignments. These assignments will include Co-chair of the Multilateral Medical Operations Panel Implementation Team (MIT) meeting, tracking and creating Stage Operations Readiness Review (SORR) charts for each mission, reviewing complex assignments that require the development of new or improved techniques and procedures for ISS programs. Additional Technical support will be required to provide meeting coordination for the MIT and Medical Operations Group (MOG) meeting as well as minute taking and action tracking.

Medical Requirements Integration

The Contractor will provide mission integration support for medical requirements. The Contractor will coordinate and integrate science with medical activities for ISS crews as defined by the MED Vol A, B & ISS MORD and expedition-specific ISS or Human Health and Performance (HH&P) documents. It is assumed that nominal workload for this subtask will include supporting up to 4Soyuz launch, 4 Soyuz landings, pre-flight preparations for Soyuz launches later in the next fiscal year, and) in addition to crew Direct Return support at JSC.

Direct Return and Star City Equipment Procurement

The contractor will procure and sustain all equipment required for the immediate return of ISS USOS Astronauts from Kazakhstan or Russia to Houston after a Soyuz landing. The contractor will ensure the equipment is in good working order, and, where applicable, manage consumables and expiring items so that equipment is prepared for deployment with minimal notice if necessary.

BME Operations Team Lead Support

The contractor will be responsible for coordinating the delivery to ISSP (OC) of medications and medical supplies requested by the flight surgeons stationed at the NASA Star City office, Russia.

The contractor will provide mission and technical support for Space and Clinical Operations at JSC during all phases of ISS increments – pre-flight, in-flight, and post-flight.

More specifically, the Contractor will support the various functions of ISS biomedical operations at JSC. The Contractor will provide support as required in the development of ISS Flight Rules (pre-defined operational decisions which facilitate real-time response during off-nominal events) and in the development of procedures for CHeCS hardware; will provide a book manager function to develop and update procedures in the ISS Medical Checklist, ISS Med Ops Book, and other onboard Operations Data File (ODF) books, including the U.S. Systems Operations Data File (SODF); and will provide inputs to medical operational concepts and ISS Crew Health Care System (CHeCS) manifest, transfer, stowage, maintenance, and commanding operations.

The Contractor will provide enhanced monitoring and support during high-risk operations as necessary (biomed monitoring during EVAs, complex in-flight maintenance/troubleshooting activities for CHeCS hardware, etc.). For each increment, the Contractor will assist in the development and update of medical requirements; will help facilitate implementation of medical requirements by participating in the pre-increment and in-flight planning processes; will ensure CHeCS consumables tracking and inventory are

up to date; and will provide operational support to sustain CHeCS hardware, including product development and assisting with anomaly resolution. Post-flight, the Contractor will prepare for post-flight Medical Operations, MOD and HH&P Increment Debriefs.

ISS BME Flight Control Operations

The contractor will provide mission and technical support for Space and Clinical Operations at JSC during all phases of ISS increments – pre-flight, in-flight, and post-flight.

More specifically, the Contractor will support the various functions of ISS Biomedical Operations at JSC. The Contractor will assist in the development of ISS Flight Rules (pre-defined operational decisions which facilitate real-time response during off-nominal events) and will provide inputs to operational references and activities such as the ISS BME Console Handbook (BCHB; JSC64200), medical operational concepts, and ISS Crew Health Care System (CHeCS) manifest, transfer, stowage, maintenance, and commanding operations. Additionally, the Contractor will support preparing the ISS SURGEON and ISS BME consoles in the MCC and updating console reference materials.

The Contractor will provide real-time console operations support during ISS increments, monitor crew health and vehicle status throughout the ISS increment, provide enhanced monitoring during high-risk operations (such as but not limited to: EVAs, vehicle docking, CHeCS hardware commanding, invasive procedures, etc.), and facilitate private conferences with the crew members (such as: Private Medical Conferences, Private Family Conferences, Private Psychological Conferences, Crew Discretionary Events, Private Special Conferences). Additional in-flight operations will include monitoring, tracking, and reporting to the ISS Flight Surgeons on the status of the data received from on-orbit hardware; logging off-nominal crew biomedical parameters or conditions; maintaining up-to-date shift logs; participating in pre- and post-shift handover briefings; and preparing daily and post-mission briefing reports. The Contractor will arrange and coordinate communications between MCC–H (Houston) and other partner control centers. The Contractor will also execute remote commanding of Crew Health Care Systems (CHeCS) hardware from MCC–H; will assist in the development of medical requirements and operational Flight Rules associated with generic and increment-specific operations; will prepare and update the reference material used at the ISS SURGEON and ISS BME consoles in the MCC; will provide biomedical operations console support during supported simulations; Post-flight, the Contractor will prepare for post-flight Medical Operations, MOD and HH&P Increment Debriefs; will reconcile Medical Operations crew time; will archive the increment's activities and data; will close out issues that occurred during the ISS increment; and will document lessons learned for future implementation.

The ISS BME Increment Manager function will be assigned for each ISS increment to assist the ISS Crew Surgeon (CS) in working issues associated with all phases of a particular ISS increment, as well as providing technical and administrative support. Examples of providing technical and administrative support will include representing Medical Operations at Joint Operations Panel (JOP) meetings; facilitating the scheduling and time-lining of all medical requirements for each assigned USOS ISS crew, assisting in resolving medically-related issues for space flight operations; preparing Medical Operations increment-specific products; and providing technical support to prepare for increment-specific

Certification of Flight Readiness (CoFR)/Certification of EVA Readiness (CoER) and Stage Operations Readiness Review (SORR)/Flight Readiness Review (FRR) panels, as required.

The Contractor will support implementation of the NASA-Roscosmos Protocol, Data Sharing and On-board Hardware Sharing Plan for Russian-US Investigations that was signed in November 2013. The implementation effort will include support of shipping of hardware to GCTC Prophylactorium, setup of hardware and data network in the Prophylactorium building, and training of Russian specialists in operation of hardware and transfer of data to JSC IT data management resources.

Training and Support

The contractor will provide and support CHeCS training and Crew Medical Officer (CMO) clinical instruction for up to 4 ISS crew rotations per fiscal year. The current and projected full ISS crew complement is 6 crew members, who rotate in and out 3 at a time per Soyuz flight. ISS training will support ISS assigned crews both prime and backup, augmentation crews, reserve astronauts, ASCANs, and ISS Pool crewmembers. This includes the following ISS lessons and the associated lesson plans, syllabi, lesson descriptions and training objectives:

ISS LESSONS					
Space Medicine Overview – 1.0 hrs					
HMS		**CMS**		**EHS**	
Title	**Hrs**	**Title**	**Hrs**	**Title**	**Hrs**
ISS CPR Self Study	0.5			ISS MED OV	1.0
				ISS MED DCS	1.0
ISS CPR	1.0	CMS PFE Ops	1.5	ISS Med DCS EXP	0.5
CMO Skills 1	3.0	CMS PFE Ops EXP	1.0	Carbon Dioxide Exposure	0.5
CMO Skills 1 EXP	2.0	CMS CEVIS Ops	1.5	Toxicology Overview	1.5
CMO Skills 2	3.0	CMS CEVIS Ops EXP	.75	Toxicology Overview EXP	0.5
CMO Skills 2 EXP	2.0			EHS MICRO Ops	1.5
CMO Skills 3	3.0	CMS OPS Skills 1	1.0	EHS MICRO Ops EXP	1.25
CMO Skills 3 EXP	2.0	CMS OPS Skills 2	1.0	EHS Radiation Ops	0.75
Retinal Imaging 1	1.5			EHS Radiation Ops EXP	0.5
Retinal Imaging 1 EXP	1.0	CMS T2 Ops	1.25	EHS Toxicology Ops	1.25
Emer Med Equip	1.0			EHS Toxicology Ops EXP	0.5
Emer Med Equip EXP	0.75	CMS T2 Ops User	1.0	EHS Acoustics	1.0
Emer Med Proc	2.0	CMS T2 Maint	1.5	EHS Acoustics EXP	0.5
Emer Med Proc EXP	1.5	CMS T2 Maint EXP	1.0	Water Collection	1.5
Tonometer Ops	1.5	CMS ARED Ops	2.0	Water Collection EXP	1.0
Tonometer Ops EXP	1.0	CMS ARED Maint	2.0		
Retinal Imaging 2	1.0	CMS ARED Maint EXP	1.0	EHS CHeCS I-S 1*	1.0
OCT OPS 1	1.5	CMS ARED Maint 2	2.0		
Megacode 1	2.0	CMS Harness Fit Chk	0.5	EHS CHeCS I-S 2*	2.0
Ultrasound Eye	1.0			EHS Water Simulation	3.0

Ultrasound Eye EXP 0.5	CMS CHeCS I-S 1* 1.0		
OCT OPS 2 1.0			
Megacode 2 2.0	CMS CHeCS I-S 2* 2.0		
Dental Procedures 1.0	ARED PT (x16) 1.0		
Dental Procedures EXP 0.5			
HMS CHeCS I-S 1* 1.0	CMS Harness Fit Check .5		
HMS CHeCS I-S 2* 2.0	CMS OPS SKILLS 2 1.0		
I.V. Refresher* 1.0			
ISS Medical Refresher – 1.0 hrs			

New in-flight hardware is tracked in each FY and assessed with respect to the training development and updates that are required to support operations. Examples of hardware development projects for FY14 include: optical coherence tomography (OCT); replacement respiratory pack (RSP); ARED platform redesign and calibration; CEVIS software redesign; radiation detector (RAD); and threshold visual field testing.

In addition, crew simulation, refresher and ancillary training should be provided when required.

The contractor will support Routine and Emergency Operations Simulations and the associated working groups. The contractor will coordinate, support, and proctor no more than 2 Field Medical Training courses per PoP. Each course may consist of up to 4 new and 2 refresher Astronaut Office (CB) students.

The contractor will provide and support ISS Medical Operations training for operational US Flight Surgeons. This will include coordination, scheduling, metrics, development of curriculum and evaluation process, and instruction.

The contractor will provide CHeCS training and CMO clinical instruction for FS s, BMEs, ASCANs, MOD, EA3, HH&P and International Partners as requested.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
6.1		**Mission Medical Support**	
601		**Medical and Mission Support**	
601	1	The contractor shall provide technical support to assist with the weekly MMOP Implementation Team (MIT) and MOG meetings	Weekly Agendas, Minutes, Action Tracker
601	2	The contractor shall provide expertise to assist with travel in support of up to 4 ISS expeditions	Twice per mission for up to 4 ISS expeditions: Travel Requests, Travel Itineraries, Expense Reports

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
601	3	The contractor shall provide physician support to perform duties for ISSP medical operations. Duties include: • Provide medical care to assigned crew members in the Flight Medicine Clinic (FMC) or other location as required. Where special skills exist in the Contractor FS cadre, the Contractor will provide consultations to FMC patients on an as-needed basis. • Provide medical care to assigned crew members in the FMC or other location as required, in the performance of the Crew Surgeon or Deputy Crew Surgeon function. • Support training activities in Star City, Russia, on a rotation basis for periods of up to three months (up to 2 rotations per year). When necessary due to increased training requirements), more than one surgeon may be required. • Hold office hours in Star City during their tours for personnel. • Support emergency landings and nominal launch and landing activities in Kazakhstan. • Support ISS missions in the Mission Control Center-Houston (MCC-H) as scheduled. • Support ISS pre and post mission activities when assigned as the Crew Surgeon or Deputy Crew Surgeon. • Provide medical monitoring • Support Direct Crew Return (R+0) flights when scheduled as the air doc	Weekly reports of required medical care
601	4	The contractor shall provide medical support to assigned International Partner (IP) Astronauts during the periods when they are in Star City for training (with the exception of Hydrolab operations).	Weekly report of required medical care
601	5	The contractor shall provide medical support to assigned IP Astronauts during the periods when they are at JSC.	Weekly report of required medical care
601	6	The contractor shall be made available to participate in crew training at JSC in the event the Crew Surgeon or Deputy Crew Surgeons are unavailable.	Weekly report of required medical care

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
601	7	The contractor shall provide training for the assigned flight surgeons to qualify them to work in Star City, Russia in support of astronauts and other US personnel stationed in Star City. This may include but is not limited to FS training course, Advanced Trauma Life Support (ATLS) training (up to 3) and Pre Hospital Trauma Life Support. This training will be scheduled as the workload and training course schedules allow.	As required training classes and briefings; monthly status reports
601	8	The contractor shall provide training for the assigned flight surgeons to qualify them to work in the MCC-H. This will include but is not limited to MOD on-line training and the requirements of the NASA International Space Station Crew Surgeon Training and Certification Plan, JSC-26546 Vol. II (Current Rev). This training will be scheduled as the workload and training course schedules allow	As required training classes and training schedules; monthly status reports
601	9	The contractor shall provide training for Direct Return assigned flight surgeons to qualify them as Air Docs. Additionally, the contractor shall provide access to Direct Return medical equipment prior to landings for Crew Surgeon to gain familiarity with equipment.	As required training classes and training schedules; monthly status reports
601	10	The contractor shall allow participation in continuing education courses and proficiency training such that clinical skills and licenses are maintained for contractor flight surgeons	Training schedule as required by certifying and licensing body
601	11	The contractor shall provide international (MMOP) medical operations expertise for weekly scheduled meetings and operational activities and to develop process/procedures for medical management of health care for ISS operations (pre, in- and postflight)	Weekly medical consultation services
601	12	The contractor shall provide expertise to interface with the Russian medical group physicians in the U.S. and Russia to assist the Expedition Crew Surgeons in the coordination of Expedition activities for up to 2 ISS expeditions	Weekly technical and medical support
601	13	The contractor shall maintain Multilateral Mission Operations web content associated with subtask requirements	Weekly review and update of agendas, minutes, calendars
601	14	The contractor shall provide an Export Control Administrator to maintain and archive various export control paperwork, as well as the Foreign National Monthly Checklist.	Weekly Activity Report
601	15	The contractor shall support an annual inventory of property associated with this subtask	Annual property verification report

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
601	16	The contractor shall support operations working groups as required (for example: Flight Rules Working Group, Emergency Operations Splinter Team, EVA Integrated Product Team (IPT)	Weekly technical support
601	17	The contractor shall provide an annual Star City rotation schedule for coordination of visas and letters of invitation	Annual rotation schedule; update as required
601	18	The contractor shall respond to MSMB requests to assist with crewmember medical certifications and ISS risk assessment determinations.	Medical consultation services as required
601	19	The Contractor shall provide personnel to act as Co-chair to the MIT.	Weekly agenda development and meeting leadership
601	20	Contractor shall track due dates, create templates, coordinate inputs and reviews of all required SD CoFR documents for all SA Pre-SORR meetings.	CoFR Presentations and Checklists as required
601	21	In support of on-going medical support in Russia, Supervisor of work package shall travel to Star City to review support and operations.	Annual travel schedule
602		**Moscow Medical Operations**	
602	1	The contractor shall maintain a medical office in Moscow and support all NASA personnel assigned to work in MCC-M and surrounding facilities.	Daily staffed Moscow office
602	2	The contractor shall maintain an inventory of medical supplies within the Moscow medical office.	Quarterly review and report of supply inventory
602	3	The contractor shall support Soyuz launches (physician and nurse) and landings (nurses).	Up to 8 travel requests per FY
602	4	The contractor shall tour regional medical facilities to determine the level of care available.	2 tours and debrief reports per FY
602	5	The contractor shall be able to support Star City operations as requested by the Star City flight surgeon.	Staffing Schedule based on need
603		**Medical Requirements Integration: ISS Data Collection Coordination**	
603	1	The contractor shall prepare and coordinate pre-flight Space and Clinical Operation crew briefing for ISS crews.	Up to 4 completed crew briefings per FY
603	2	The contractor shall implement pre-flight ISS medical activities, including insuring proper integration of BDC science activities with medical activities; ensure implementers adhere to all test constraints; and assist with crew sample logistics/collection.	Coordination of familiarization, training, and preflight testing as required per test requirements detailed in applicable documents (i.e MED Vol A & B, MORD, MRID)

603	3	The contractor shall implement postflight ISS medical activities, including insuring proper integration of BDC science activities with medical activities; including support to Post-Mission Working Group (PMWG) and crew support (biosamples, transportation).	Coordination and integration of activities after return from landing site during the R+0 to R+60 (60 Days Post Crew Return) timeframe for all crewmembers per test requirements detailed in applicable documents (i.e MED Vol B, MRID)
603	4	The contractor shall maintain a record of proposed and completed MAT dates including any waivers granted for each crewmember; Coordination/tracking of all assigned crewmember MATs testing as directed by SD including Annual Medical Exams (AME) and MEDB testing.	Maintain and document completed MAT sessions and dates electronically for delivery to FS and SD management upon request Per crewmember, up to 1 per month.
603	5	The contractor shall evaluate MRID change requests and provide HH&P review board meeting support	Evaluate SCOCCB Change Requests; Per SCOCCB schedule, up to 6 per quarter.
603	6	The contractor shall provide meeting subject matter expert support at the SCOCB, MIT, Stage Operations Readiness Review (SORR),etc	Present MR status for each launching and landing crewmember; Up to 5 presentations, per the HH&P Schedule
603	7	The contractor shall provide support to the expedition specific Training Requirements Integration Panel (eTRIP).	Support eTRIP meetings and inputs to ISS Multilateral Advanced Increment Training Plan (MA/ITP). Maintain ownership of MEDB flow and update MOD scheduling software (BAF, Fox, etc.) as needed.
603	8	The contractor shall provide Flight Surgeon training to occur during Flight Surgeon block training on the MAT overview for flight surgeon	Up to 2 training lessons per FY
603	9	The contractor shall develop and maintain a schedule of all crew activities including medical activities, BDC, PAO, meetings, debriefs etc. from crew return to JSC through schedule handover to MOD somewhere around R+15.	Support up to 4 landings per year: Schedule to FS R-6 weeks and crew through MOD R-4 weeks
603	10	The contractor shall provide logistic support to HH&P team for postflight period including direct return for post-flight medical sample collection and return.	Support up to 4 landings per year: Coordination of sample return and access to Astronaut Quarantine Facility (AQF) with CB management and other facilities as required.
603	11	The contractor shall preposition supplies to support landing and crew return on the crew plane prior to departure from Ellington.	Support up to 4 landings per year: Coordination of MR Sample collection supplies, linens/sheets and checklist for use on the plane
603	12	The contractor shall prepare and present post-flight logistical overview for crew member spouses at the CB	Support up to 4 landings per year: Present at the CB office

		office Landing/Direct Return Briefing	Landing/Direct Return Briefing
604		**Russian MAT/BDC Support**	
604	1	The contractor shall provide logistics support to HH&P Contractor team traveling to Russia for ISS crew contingency landings.	Support up to 4 landings per year: Letters of invitation, visa coordination, and other traveler logistics (transportation, housing,) support overseas
604	2	The contractor shall develop and maintain a schedule of activities including MRs and BDC to be performed in Russia in the event of a contingency landing.	Draft and final versions of contingency post-flight crew schedules; Draft at R-4 weeks; final at R-2 weeks, 2 landings
604	3	The contractor shall schedule hearing protection MR for Russian Crewmembers in the US.	Coordination of ear plug impressions and fittings and updating Russian MEDB Hearing Assessment Test Schedule; Up to 4 times per FY
605		**Direct Return Equipment Procurement**	
605	1	The contractor shall procure and maintain all equipment required for crew Direct Return	Hardware required for up to 4 direct return flights per FY
605	2	The contractor shall store, maintain, and make available for training the direct return equipment to ensure the capabilities of deploying with minimal notice.	Monthly readiness checklist
605	3	The contractor shall resupply consumables and expiring items on an as needed basis.	Monthly readiness checklist; resupply as required
605	4	The contractor shall participate in Direct Return meetings as scheduled	Meeting participation as needed
606		**Star City Equipment Procurement**	
606	1	The contractor shall prepare, procure, and provide (per SD-WI-004) medical supplies and consumables to support the flight surgeon office located in Star City, Russia	Resupply medical supplies and consumables up to 8 times per FY
606	2	The contractor shall perform analyses and trade studies to define medical equipment requirements and pharmaceutical upgrades for the flight surgeon office in Star City.	Up to 2 studies and briefings per FY
606	3	The contractor shall maintain and update SD-WI-004	Work Instruction as required
607		**BME Operations Team Lead Support**	
607	1	The contractor shall provide clinical support to monitor in real-time the electrocardiograms (ECGs) of crewmembers that are performing Extravehicular Activity (EVA). This monitoring includes the ability to recognize abnormal heart rhythms (dysrhythmias)	ECG analysis and EVA Report per US-based ECG
607	2	The contractor shall provide to the crew surgeon on console an ECG Holter monitor report and summary of each EVA crewmember's ECG data within 24 hours after every EVA, or at designated time agreed upon by the crew surgeon.	EVA Report per US-based ECG
607	3	The contractor shall present CHeCS hardware item status at the Critical Readiness Review (CRR) meetings held at Launch minus 1-2 months. The Contractor shall provide	Briefing per increment

		necessary briefing materials.	
607	4	The contractor shall provide weekly reports of ISS Medical Operations accomplishments to the NASA Technical Monitor and SD Management	Weekly Report
607	5	The contractor shall provide clinical and/or BME support for CHeCS hardware functional analysis, end-to-end testing, and verification for new hardware/software items and changes to existing onboard equipment.	Monthly Technical support and briefings
607	6	The contractor shall manage all Change Requests (CRs) to the ISS Medical Checklist through a formalized ISS Change Request process, which will require documenting the rationale and historical summary of any changes to procedures, medications, hardware, or supplies.	Up to 5 Updated ISS Medical Checklist and associated documentation per month
607	7	The contractor shall create and/or facilitate updates to procedures for CHeCS hardware/software. The Contractor shall manage the CHeCS ops teams, which provides a forum for CHeCS disciplines (Operations, Science, and Engineering) to discuss issues and provide procedural inputs. Operations Teams for this subtask will include the following disciplines: Microbiology, Water Quality, Acoustics, Toxicology, Radiation, Nutrition, Health Maintenance, and Countermeasures. The following CHeCS devices/applications are supported: • Advanced Resistive Exercise Device (ARED) • Cycle Ergometer with Vibration, Isolation, and Stabilization (CEVIS) • Heart Rate Monitor 2 (HRM 2) • Countermeasures System Software (CMSS) applications. • Blood Pressure/Electrocardiogram (BP/ECG) monitor • Treadmill 2 (T2) • Acoustic dosimeter • On Orbit Hearing Protection • Sound Level Meter (SLM) • Bose headsets and cables • Colorimetric Water Quality Monitor Kit (CWQMK) • Crew Passive Dosimeter (CPD) • Radiation Area Monitor (RAM) • High Rate Dosimeter (HRD) • Compound Specific Analyzer – Combustion Products (CSA-CP) • Carbon Dioxide Monitor (CDM) • Inflight Gas Delivery System (IGDS)/Portable Gas Delivery System (PGDS) • Extravehicular Charged Particle Directional Spectrometer (EV-CPDS) • Tissue Equivalent Proportional Counter (TEPC) • Intra-vehicular Tissue Equivalent Proportional Counter (IV-TEPC)	Up to 5 nominal/off-nominal procedures per month per device/application. Updated CHeCS procedures

		• Formaldehyde Monitor Kit (FMK) • Air Quality Monitor (AQM) • Grab Sample Container (GSC) • Microbial Air Sampler (MAS) • Surface Sampler Kit (SSK) • ISS Water Kit • Total Organic Carbon Analyzer (TOCA) • Radiation Assessment Detector (RAD) • ISS Portable Oxygen Monitor (IPOM) • Automated External Defibrillator (AED) • Crew Contamination Protection Kit (CCPK) • ISS Medical Accessory Kits (IMAKs) • ISS Medical Kits (9) • Eyewash • Crew Medical Restraint System (CMRS) • Respiratory Support Pack (RSP) • Windows Space Cognitive Assessment Tool (WinSCAT) • Food Frequency Questionnaire (FFQ) • On-Orbit Hearing Assessment (O-OHA) software • Data Collection Tool (DCT) • Treadmill Harnesses • Fundoscope • Visual Acuity software • Tonometer • Optical Coherence Tomography (OCT)	
607	8	The contractor shall provide a Book Manager function to manage all updates to CHeCS procedures in the ISS Medical Operations Book.	Up to 20 CRs for updated ISS Medical Operations Book
607	9	The contractor shall provide BME subject matter experts to assist the crew training team with reviewing lesson plans and computer-based training (CBT) for ISS crew training.	Up to 5 Edited crew lesson plans and CBTs per month
607	10	The contractor shall support EHS, CMS and HMS SPRTs and Failure Investigation Team (FITs) as required to help resolve inflight anomalies for all CHeCS hardware items.	Technical support and briefings; Weekly, or as scheduled by the System Manager
607	11	The contractor shall manage and update CHeCS hardware and procedure operations nomenclature (Op Nom) through the formalized ISS CR process.	Up to 5 CRs for updated Op Nom and associated documentation
607	12	The contractor shall provide input to the CHeCS Cargo Integration Transfer List (CITL) for every visiting vehicle arrival/departure.	1 Cargo Integration Transfer List CITL per launch vehicle
607	13	The contractor shall review and provide inputs specific to CHeCS activities for every increment IDRD Annex 2, 3 and 4.	Technical support and updates to Annex contents per increment
607	14	The contractor shall develop and provide the CMS equipment matrix to Inventory Support Officer (ISO) for each increment	1 CMS equipment matrix per new crewmember rotation
607	15	The contractor shall perform a weekly review of the BME	Weekly technical support and

		Mission Planning Tool (MPT) content to ensure all planning data is correct for medical operations activities	proposed updates to MPT
607	16	The contractor shall perform a weekly review of the ISS CHeCS inventory and consumables tracking data to ensure it is up to date and reflects the latest onboard operations.	Weekly technical support and proposed updates to ISS onboard inventory
607	17	The contractor shall provide console support for all VIIP activities requiring remote guidance from the ground as necessary (visual acuity, fundoscopy, Ultrasound and OCT)	Weekly MCC activity summary report

608		**BME Flight Control Operations**	
608	1	The contractor shall provide Mission Control Center (MCC) console certified support for the ISS Flight Control Room (FCR) 3 shifts and the Multi-Purpose Support Room (MPSR) 2 shifts in support of each ISS increment; 24 hours per day, 5 days per week, with at least 1 shift each on Saturday and Sunday, followed by on-call coverage for the remainder of each day. Transient changes in the support schedule caused by increases and decreases in on-orbit operations and ground support requirements will be handled on a case by case basis.	Annual certification records; Flight control support as directed
608	2	The contractor shall provide Mission Control Center (MCC) console support for the ISS FCR and the MPSR (as required) in support of each ISS simulation, Joint Integrated Simulation, and any other simulation supported by Medical Operations.	Annual certification records; Simulation support as required
608	3	The contractor shall provide support to script meetings for simulations and provide scenarios for the ISS Surgeon/BME discipline	Simulation scripts, scenarios, simulation debriefs, and evaluations as required
608	4	The contractor shall create and distribute in electronic format a Daily Report highlighting medical operations activities, anomalies, and increment highlights for each day during an ISS increment	Daily Summary Report
608	5	The contractor shall document all CHeCS hardware anomalies through an official ISS Anomaly Report. All ISS Anomaly Reports will be maintained and archived in a searchable database on the MOD gateway in MCC-H.	Anomaly Reports as required, per hardware anomaly
608	6	The contractor shall coordinate all necessary MCC hardware and logistics activities in support of Private Medical Conferences (PMCs), Private Family Conferences (PFCs), Private Psychological Conferences (PPCs), Crew Discretionary Events (CDEs), and Private Special Conferences (PSCs) during every increment, including preparation of	Weekly coordination and logistics for PMCs, PFCs, PPCs, CDEs, and PSCs (30 minutes prior to the event)

		medical kits, conference room, MPSR configuration and recording on electronic media when required (PMCs) and upon request (all others). .	
608	7	The contractor shall perform all activities outlined in the ISS BME Increment Manager Checklist Document at the indicated time. A Deputy BME Increment Manager will be required to support the additional scheduling tasks with a 6-person crew.	Reports, presentations; As required in the checklist
608	8	The contractor shall participate in the following meetings in support of ISS as required: Stage Operations Readiness Reviews (SORR)*, SA CoFR, Joint Operations Panel (JOP), Flight Rules Control Board, Certificate of EVA Readiness (CoER)*, Ops Cadre, MMOP Implementation Team (MIT), CMS Tag-up, Flight Activities Control Board (FACB), Crew Training sessions. Those meetings indicated with an asterisk (*) will require the preparation of a briefing package in a standardized format, with flight-specific information	Briefings; Participation in JOP Face-to-Face TIMs, as requested by MOD; Up to 100 per PoP – briefing packages will be due as scheduled by SA, but no later than 2 work days prior to the meeting date
608	9	The contractor shall participate in the following internal Medical Operations Meeting and shall document meeting minutes and action items: ISS Medical Operations BME Tag-Up meetings (weekly). The ISS Medical Operations BME Tag-Up meetings shall have a formalized agenda prepared by the contractor.	Technical support, agendas, minutes, and Action Item list; Up to 5 per month with minutes due within a week and posted as directed
608	10	The contractor shall provide analyses of schedules, procedures, and other technical documents associated with ISS Increment activities.	Reports, presentations; Up to 8 per month – Provide at the weekly MIT meeting and as directed following MIT
608	11	The contractor shall maintain, distribute and update the following Medical Operations documents, and as required by interim changes: • ISS BME Increment Manager's Checklist • ISS CHeCS Hardware Catalog • BME Console Handbook	Updated ISS BME IM Checklist Updated ISS CHeCS Hardware Catalog Updated BME Console Handbook At least 1 update per document per PoP
608	12	The contractor shall provide circadian rhythm expertise.	Circadian rhythm recommendations; Weekly, as required
608	13	The contractor shall produce an ISS BME Increment Manager (IM) Staffing Matrix in electronic format, listing the ISS BME Increment Manager assignments for at least the next 24 months of ISS increments, updated quarterly or as required. Deputy BME Increment Managers will be required for 6-person	Updated ISS BME IM Staffing Matrix quarterly or as required

		crew operations.	
608	14	The contractor shall ensure that all necessary Operations Data File and Medical Operations documents are current and that duplicate copies are provided in the FCRs and MPSR	Updated Operations Data File library as required
608	15	The contractor shall schedule, participate, provide necessary briefing materials (including increment overview) and take minutes at the Critical Readiness Review (CRR) meetings held at Launch minus 1-2 months.	Briefing per increment
608	16	For United States (US) EVAs conducted during an Increment, the contractor shall prepare an EVA Briefing that covers details about the EVA (crewmembers, duration, suit configuration, acronyms, pre-breathe plan, etc.).	Briefing per EVA
608	17	The contractor shall provide representatives to Mission Evaluation Room (MER), ISS Mission Management Team (IMMT), and Ops Tag-Up meetings during ISS increments, as required, and report back to the Increment Surgeon and the Flight Control Team	Weekly and as required technical support and briefings
608	18	The contractor shall track the status of any increment-generated Chits submitted due to on-orbit medical hardware failures or anomalies; status updates shall be provided at scheduled ISS Medical Operations BME Tag-Up meetings.	Up to 5 Chit briefings per month
608	19	The contractor shall participate in the creation and submission of any newly developed ISS medical flight rules through the MMOP Flight Rules Working Group, the SCOCB and the Flight Rules Control Board.	Updated Flight Rules, Documentation, Briefings; 1 per month or as required
608	20	The contractor shall provide weekly reports of ISS Medical Operations accomplishments to the NASA Technical Monitor and SD Management	Weekly Report
608	21	The contractor shall provide an experienced BME to support the EVA Integrated Product Team (IPT) meetings.	Technical support and briefings; Monthly
608	22	The contractor shall provide an experienced BME member of the EVA IPT as requested to support EVAs during an increment.	Technical support and briefings; up to 2 EVAs per increment
608	23	The contractor shall provide clinical and/or BME support for CHeCS functional analysis, end-to-end testing, and verification.	Technical support and briefings; Monthly
608	24	The contractor shall support Multilateral Medical Operations Panel (MMOP) functions and meetings as required. This includes assisting in the mentoring of	Weekly technical support and briefings; Participation in MBOP as requested by the

		ISS Partner Flight Surgeons and other Partner members of the Biomedical flight control team, as well as yearly participation at the face-to-face Multilateral Biomedical Operations (MBOP) Working Group meeting and periodic telecons	customer.
608	25	The contractor shall archive all Daily Summary Reports (DSRs) and Log Notes.	Daily Summary Reports (DSRs) and Log Notes
608	26	The contractor shall update and maintain a Certification and Training Plan for ISS Biomedical Engineers (BMEs) as required.	Annual Certification and training plan
608	27	The contractor shall conduct certification training for ISS Biomedical Engineers (BMEs) per the requirements listed in the Medical Operations Biomedical Flight Control Training and Certification Plan.	Training classes; weekly and as required
608	28	The contractor shall develop and maintain written and practicum examinations for ISS BMEs.	Provide and maintain examinations; Quarterly, as required
608	29	The contractor shall provide a BME Technical Liaison for each increment to serve as the primary BME leadership input to the ISS CHeCS System Managers and Sustaining Engineering. The Liaison will attend all CHeCS SPRTs and FITs to work hardware issues.	Reports, presentations; Weekly, as required
608	30	The contractor shall present summary status for all CHeCS hardware anomalies and issues at the Medical Operations MIT meeting.	Weekly hardware status report
608	31	The contractor shall present a two week look ahead report for all Medical Operations activities at the MIT meeting.	Weekly activity look ahead report
608	32	The contractor shall maintain ongoing crew time status throughout the increment and present crew time status at the MIT meeting.	Weekly crew time accounting summary
608	33	The contractor shall reconcile Medical Operations crew time throughout the increment with the ISS Program Increment Engineer.	Weekly technical support and briefings
609		**Russian VIIP MRID Implementation**	
609	1	The contractor shall support network and computing infrastructure with ISS network (NISN) personnel in Russia to ensure proper transmission of medical data.	Monthly briefing
609	2	The contractor shall support the protocol hardware in the GCTC Prophylactorium.	Annual inspection and functional validation report
609	3	The contractor shall assess proficiency of Roscosmos personnel on the MEDB 1.10 ground eye examination protocol only except for the Magnetic Resonance Imaging (MRI) protocol.	Annual assessment report/data review
609	4	The contractor shall provide reports on the	1 Report per increment

		accomplishments of Russian VIIP MRID Implementation activities to the NASA Technical Monitor and SD Management.	
610		**Training**	
610	1	The contractor shall track and maintain records of all required safety training for personnel within this subtask	Safety Records as required
610	2	The contractor shall participating in meetings with FSs, BMEs, DI, EA3, EC, MOD and members of the MMOP via teleconferences and MMOP working groups regarding Medical Operations training issues such as: training innovations, training hardware fidelity, and training integration	Technical support and briefings as needed
610	3	The contractor shall maintain training content for web and Training SharePoint site associated with subtask requirements	Updated Space and Clinical Operations Division web site as needed
610	4	The contractor shall provide a report of the task order performance metrics to NASA TM.	Quarterly task order report containing metrics to Share Point, in deliverables folder
610	5	The contractor shall update and maintain the Space Medicine Crew Training Certification Guide (JSC-66375).	Annual update of the Space Medicine Crew Training Certification Guide
610	6	The contractor shall provide certified/licensed clinician instructors for all CHeCS Medical Operations lessons/CMO clinical instruction.	Certification records within Space Medicine Crew Training Certification Guide document; as required
610	7	The contractor shall provide liability coverage to the licensed contractor clinicians.	Liability coverage; as needed
610	8	The contractor shall provide flight like Commercial Off The Shelf (COTS) consumables for CHeCS and CMO instruction to support ISS Crew, BME and FS training.	Materials for training; as needed
610	9	The contractor shall update and maintain curriculum materials and training flows associated with ISS Crew training lessons including: lesson plans, syllabi, lesson descriptions, training objectives, handouts, presentations, evaluations and training catalogs	Space Medicine Crew Training Certification Guide; as needed
610	10	The contractor shall update and maintain the HMS and ALS CBTs.	CBT lessons, technical support; as needed
610	11	The contractor shall schedule, and properly document the use of human test subjects for phlebotomy, tonometer, intravascular catheter insertion and intramuscular injection for CMO training.	Consent form, laymen summary, completed timesheets;

610	12	The contractor shall provide a mandatory annual review and submittal of the "Use of Human Test Subject for Blood Collection Testing" along with approval by the JSC IRB	Annual update of the "Use of Human Test Subject for Blood Collection Testing" document
610	13	The contractor shall maintain a training hardware issue tracker for each subsystem (CMS, EHS, and HMS). The tracker will include hardware availability, maintenance and update issues.	Quarterly summary report based on hardware issue tracker
610	14	The contractor shall provide pre-flight CHeCS Medical Operations training and CMO clinical instruction sessions for prime and backup ISS crews, augmentation crews, reserve astronauts, ASCAN's and ISS Pool crewmembers including scheduling, and providing lessons.	Up to 225 unique training session per FY; Training Schedule; Training Report
610	15	The contractor shall provide support for the ISS Training Budget Team to implement satisfactory crew training time in order to meet the medical training requirements for ISS crewmembers. The budget will specify the number of hours required, sequence, and schedule for medical training requirements.	Document training budget (Build-A-Flow)
610	16	The contractor shall track, update, maintain and provide reports on the training status of ISS Crews and ASCANs	Training reports and certification memos as needed
610	17	The contractor shall provide CHeCS and CMO training support for assigned ISS crew: Routine Operations and Emergency script meetings and simulations.	Up to 8 training sessions per month; Training Schedule, Training Scenarios
610	18	The contractor shall provide CHeCS and CMO training support to the Routine Operations Simulation and Emergency Operations Working Groups.	Support up to 3 technical briefings per week
610	19	The contractor shall support Field Medical training (FMT) with 2-4 new students and up to 2 refresher students per course by coordinating, scheduling, attending training sessions and providing a post course debrief	Up to two FMT courses per FY; Training report including debrief minutes per FMT
610	20	The contractor shall update, maintain and provide real-time support of the two scheduled On-Orbit Contingency Drills per increment	Support up to 2 on-orbit contingency drills; Support metrics provided quarterly
610	21	The contractor shall schedule and provide CHeCS hardware training sessions for FSs, BMEs, ASCANs, MOD, EA3, EC and other as directed by NASA TM	Provide up to 125 training session per FY; Training Schedule; metrics provided quarterly

610	22	The contractor shall track, update, and provide training reports on Medical Operations Training for US FSs.	Monthly training reports
610	23	The contractor shall provide hardware and instructor support for integrated simulations for Flight Surgeon and BME training.	Up to 4 sessions per month; Training Schedule
610	24	The contractor shall update, maintain, and provide technical support for the ISS Medical Operations Flight Surgeon and BME training utilizing HMS, and ALS CBTs	Annual review of CBT lessons; update as needed; technical support as needed
610	25	The contractor shall update and maintain MOD training utilizing CHeCS CBTs	Annual review of CBT lessons; update as needed
610	26	The contractor shall update and maintain the curriculum documented in the ISS Flight Surgeon Training and Certification Plan (JSC-26546).	Annual review of ISS Flight Surgeon Training and Certification Plan; update as needed
610	27	The contractor shall develop new classes and curriculum both stand-alone and associated with ISS Flight Surgeon Training and Certification Plan (JSC-26546).	Up to 2 JSC-26546 associated and stand-alone training session per FY
610	28	The contractor shall develop, update and maintain test questions as associated with ISS Flight Surgeon Training and Certification Plan (JSC-26546).	Updated exam question database as needed
610	29	The contractor shall develop and provide support for ISS FS Medical Operations training simulations conducted in the Medical Simulation lab and documented in the ISS Flight Surgeon Training and Certification Plan.	Develop and Support up to 2 training simulations and scenarios per FY
610	30	The contractor shall assist with design and curriculum development of the International Partner Crew Surgeon Training Plan if requested.	Updated IP Crew Surgeon Training Plan; as needed
610	31	The contractor shall assist with IP flight surgeon operational training coordination and support for up to 4 IP flight surgeons located in the US, based on ISS Flight Surgeon Training and Certification Plan and the International Partner Crew Surgeon Training Plan as applicable.	As requested
610	32	The contractor shall provide support for ISS ODF PV sessions	Technical support of Up to 25 sessions per FY
610	32	The contractor shall provide real time support of procedures and hardware at the request from Surgeon, OTL, or BME.	Real time support during Orbit 1, Orbit 2, or Orbit 3; Up to 6 times per FY
610	34	The contractor shall provide support for kinematic studies using the CMS training hardware.	Technical support as needed
610	35	The contractor shall provide support for development of enhancements for orbit inventory tracking.	Technical support as needed

610	36	The contractor shall provide support of fit checks, testing, and enhancements using training hardware.	Technical support as needed
610	37	The contractor shall coordinate loaning training hardware to various organizations upon request.	Technical support as needed
610	38	The contractor shall coordinate and implement in April and October the Aerospace Medicine Clerkship for 4th year medical students by providing: announcements, responses to interested parties and applicants, assistance with selection of applicants, assistance with mentoring of clerks, class schedules, tours and badging, completing evaluations and maintaining a research presentation database	Coordinate training classes and provide technical support for up to 2 Aerospace Medicine Clerkships per FY
610	39	The contractor shall coordinate and implement the annual Air Force Optometry Resident and Army-Navy and Air Force Residents in Aerospace Medicine (RAM's) one-week JSC medical training program by providing class schedules, tours and badging assistance	Coordinate training classes and provide technical support for up to 2 RAM Medical Training per FY
610	40	The contractor shall coordinate and implement the annual Advanced Aerospace Medicine for International Medical Officers two-day JSC medical training program.	Coordinate training classes and provide technical support for 1International RAM Medical Training per FY
610	41	The contractor shall coordinate and implement the annual Medical Student Orientation to Aerospace Medicine Training programs by providing the military medical students with badging, class schedules, and assisting in tours.	Coordinate training classes and provide technical support for 1Medical Student Orientation to Aerospace Medicine Training Program
610	42	The contractor shall coordinate and support the University of Texas Medical Branch Aerospace Medicine Residency NASA rotation for residents by providing badging, coordinating classes and assisting with completion of practicum checklist for JSC activities.	Coordinate training classes and provide technical support for up to 5 UTMB residents per FY
610	43	The contractor shall coordinate and implement the annual University of Texas Medical Branch Introduction to Aerospace Medicine Summer (IASM) Short Course, a 1-2 day medical training program at JSC by providing badging, coordinating class schedules, and tours.	Coordinate training classes and provide technical support for 1 IASM short course per FY
610	44	The contractor shall coordinate and implement the annual Baylor College of Medicine 1-day visitor program at JSC by providing badging, coordinating class schedules, and tours	Coordinate and provide l support for 1 Baylor College of Medicine 1-day visitor program at JSC

610	45	The contractor shall provide assistance with badging, tours and class schedules for visitors of Space and Clinical Operations who are associated with an officially recognized NASA Space and Clinical Operations Training program and/or approved by the Chief of SD. The contractor shall provide badging procedures for use by SA program coordinators for NASA Space and Clinical Operations Programs (residents, workshops, summits).	Tours and schedules for up to 48 visitors per FY
610	46	The contractor shall provide a weekly visitor and badging report including metrics on the number of US and Foreign National visitor badges submitted and the classes and tours provided.	Weekly visitor badging report

Subtask 6.2 Mission Operations Support

The management of this subtask will require supervisory, integration, and administrative activities. The range of work covers tasks and duties performed in support of the Human Research Program, ISS Program, Multilateral Medical boards and panel, MPCV, and CCP. Major activities include support of transition to operations, requirements documentation and revision, multilateral support (meetings, documentation, etc.), and emergency preparedness.

Human Research Program Liaison
The contractor will provide a Program Clinician that will work directly with the Human Research Program (HRP) Management team to ensure research planned for transition to Medical Operations is focused on the Medical Operation's needs. The Program Clinician will also act as the liaison between the HRP Elements, primarily Human Health and Countermeasures (HHC), Exploration Medical Capability (ExMC), and the Behavioral Health and Performance (BHP), and the flight surgeons. Additionally the Program Clinician will support mission operations as a console certified Flight Surgeon, and perform rotations to Star City, Russia to support crew training activities.

Documentation: Requirements, Integration, Products, and Services
The Contractor will manage the acquisition and distribution of medical data from the ISS and maintain the ISS Surgeon/BME PC environment and Mission Control Center (MCC) application software used during ISS increments and simulations.

The Contractor will manage the documentation of medical requirements and implementation plans. The Contractor will develop ISS Program and SCO documents and revisions to maintain current status. The Contractor will track and maintain multilateral medical requirements and provide coordination and integration of those requirements through program change processes. An electronic archival and periodicals library will be maintained to support the needs of the SCO.

Multilateral Medical Management Support

Major activities include coordination and support of the multilateral meetings, Multilateral Space Medicine Board (MSMB), Multilateral Medical Operations Panel (MMOP) etc.

Documentation of the decisions and assigned actions from the multilateral meetings is important as these are used to establish the common working agreements between International Partner (IP) personnel supporting the ISS or the crews. International support is centered on the coordination of ISS medical activities through the multilateral medical boards, panels, and working groups. It encompasses preflight, in-flight and postflight activities and uses working groups in various areas to accomplish the work. This coordination requires the ability to work with many different boards and managers from a variety of countries/organizations. Knowledge of foreign language, especially Russian, international customs and procedures greatly enhances the ability of the group to perform this function.

Spaceflight Emergency Response Planning

The Spaceflight Emergency Response Planning support is centered on the planning and coordination of Emergency and Disaster Operations as it relates to medical support activities in the event of space flight vehicle accident or JSC emergency or disaster-related mishap. This involves the development of Emergency Medical System (EMS) requirements, procedures, training aids/briefings and providing real-time mitigation, response, and recovery support of mishap investigations. In order to advise NASA SCO Division on the above activities, the Emergency Planning Group will keep informed of NASA documentation that provides guidance in these areas and remain in contact with the Department of Defense (DOD) to keep up with current response and recovery plans to support NASA. Updates to plans/procedures in Russia will be maintained, to the extent the information is made available by the Russian Space Agency and ISS Program Office. In order to accomplish the aforementioned activities, the Group will participate in scheduled training and contingency exercises run by the DOD or NASA.

The current world situation, the situation in the U.S. with respect to threats and therefore the situation at Johnson Space Center (JSC) make it mandatory for the Center to prepare for and develop a response in case of the threat or natural disaster at JSC. To this end, the Contingency Operations group will provide support to SD3 in their preparation of NASA and JSC center-wide plans. Contingency Operations will provide consultation for any natural or man-made disaster involving JSC and NASA wide operations.

Additionally contractor shall provide subject matter expertise to review, comment on and support program integration and review board meetings for Commercial Crew Program (CCP) deliverables from each of the commercial providers., Examples of the products to review for each company include: Certification Plan, Verification and Validation Plan, Hazard Reports and proposed Alternate Standards as they are applicable to Medical Operations subject matter concerns.

The Contractor will provide specialized human health and performance technical expertise to the NASA Multi-Purpose Crew Vehicle (MPCV) Program Office for the evaluation of certification related products and in support of certification planning activities

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
6.2		**Mission Operations Support**	
611		**HRP and Medical Mission Support**	
611	1	The contractor shall report to SD2 Flight Surgeons on upcoming HRP research issues.	Weekly verbal report
611	2	The contractor shall convey MOG research needs and prioritization to HRP management.	Weekly verbal report
611	3	The contractor shall ensure that Med B and other operational documents, such as concept of operations include HRP requirements as appropriate	Document review as required
611	4	The contractor shall participate in the yearly HRP standing review panel meetings.	Yearly meeting report
611	5	The contractor shall participate in HRP investigator workshops, HRP research meetings, discipline meetings, and other meetings as appropriate	Weekly meeting report
611	6	The contractor shall participate in the Behavioral Health and Performance working group.	Yearly meeting report
611	7	The contractor shall participate in multiple boards as an active member including, for example but not limited to Visual Impairment/Intracranial Pressure, HRP Control Board, Science Management Panel	Weekly meeting report
612		**Documentation: Requirements and Integration**	
612	1	The contractor shall maintain and track USOS and IP medical requirements documentation for ISS.	Monthly documentation coordination and revisions via the Change Request (CR) process
612	2	The contractor shall provide inputs as needed to generic ISS Program level documentation including: • SSP 50489, Mission Integration Template • SSP 54100, Multi-Increment Planning Document • SSP 54004, Increment Definition and Requirements Document for Increment X Standard Blank Book • SSP 50200, Station Program Implementation Plans • SSP 50261-01 and -02, Generic Ground rules Requirements and Constraints (GGR&Cs)	Monthly documentation coordination and revisions via the CR process

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
612	3	The contractor shall provide inputs to the following increment-specific program documentation: • SSP 540XX_YY Increment Definition Requirements Document (IDRD) and Blank Book • SSP 540XX_YY IDRD Annex 2: Maintenance • SSP 540XX_YY IDRD Annex 3: Imagery • SSP 543XX_543YY Post Increment Evaluation Report	Documentation coordination and revisions via the CR process Per IDRD Period
612	4	The contractor shall provide baselines and revisions to SSP 540XX_YY IDRD Annex 4: Medical Operations and Environmental Monitoring	Documentation coordination, baselines and revisions via the CR process; Per IDRD Period
612	5	The contractor shall provide a review and update, as needed, to the ISS MORD document to the ISSP.	Documentation coordination and revisions via the CR process; up to 3 per FY
612	6	The contractor shall provide revisions to Office of the Chief Health and Medical Officer (OCHMO) 80771201 Medical Evaluation Documents (MED) - NASA Crewmembers Medical Standards For Selection And Periodic Certification Volume 1 and JSC 24834 Medical Evaluations for Short Duration, Volume 2	Documentation coordination and revisions via the CR process; up to 3 per FY
612	7	The contractor shall provide revisions to the ISS (MED) Volume A, B and C	Documentation coordination and revisions via the CR process; Up to 6 per FY
612	8	The contractor shall baseline and revise Medical Requirements Integration Documents (MRID) and update the related MRID and MMOP web site	Documentation coordination and revisions via the CR process; Up to 6 per month
612	9	The contractor shall provide a review and revision, as needed, for documents related to the ISS program to the Space and Clinical Operations Document Matrix.	Quarterly matrix updates
612	10	The contractor shall provide review and inputs for ISS Program and Space and Clinical Operations Control Board (SCOCB) change requests.	Weekly CR dispositions, documentation coordination and revisions
612	11	The contractor shall maintain the Space Medicine Library, maintain an electronic library listing, and maintain an electronic indexing system.	Weekly updates to the Space Medicine Library
612	12	The contractor shall participate in ISS Program, medical boards and other medically related panels, meetings or groups to maintain SCO documentation.	Support up to 10 ISS boards and panel participation, updated documentation and action item resolution weekly

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
612	13	The contractor shall participate in and represent the Human Health and Performance (HH&P) and Human Space Flight Operations Branch at the following ISS Program meetings, including splinters: Crew Time Working Group (CTWG),and Flight Program Integration Panel (FPIP)	Support up to 6 ISS boards and provide panel representation and action item resolution weekly
612	14	The contractor shall provide an analysis of medical operations crew time during all increment phases (including pre and post increment) and act as a liaison for reconciliation with BME Increment Manager and ISS Program Crew Time Engineer	Weekly crew time assessments and reconciliations
612	16	The contractor shall provide a review and update to the Joint Medical Operations Implementation Plan (JMOIP) and Annexes	Annual documentation coordination and revisions.
612	17	The contractor shall support an annual inventory of property associated with this subtask	Annual Property verification report
612	18	The contractor shall input new or updates to increment specific IDRD Annex 3 imagery activities into the Mission Integration Database Application System (MIDAS) Imagery Request Tracking System (IRTS)	MIDAS inputs per IDRD period
613		**Data Products and Services**	
613	1	The contractor shall create new or maintain and manage twenty-seven Linux workstation software configuration items in Mission Control Center systems utilized by ISS Flight Surgeons and ISS BMEs	Per FY, update displays/software for up to an equivalent of 5 data files: 1 level 1, 1 level 2, 1 level 3 and 1 level 4 applications
613	2	The contractor shall initiate Support Requests (SR) and provide requirements and rationale to create new or update LINUX commanding applications developed and maintained by the Facilities Development and Operations Contract(FDOC) for use in Mission Control Center by ISS BMEs	Submit FDOC Support Request as required

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
613	3	The contractor shall provide a Display Technical Representative (DTR) for the Surgeon discipline to perform functions including: • Acting as a requirements coordinator for internal and FDOC managed software • Participating in FDOC software development life cycle reviews • Authorizing changes to Surgeon discipline MCC workstation configurations • Providing direction to promote data files and software	Software documentation as required as required
613	4	The contractor shall verify via the AutoCar system, new and revalidation access requests for MCC System (MCCS) Surgeon/BME accounts including: • MCCS - MSE (MAS, IPS) • TRAINING - FCPTT-ISIS • DEV - OTF • DEV - OTF – MCCX • OPS - MCCS - COMMON LAN MARS WS • DEV – CDE • DEV - CDE MSL • OPS - MCCS - MCC21 CRITICAL (MCE, HITE, FME) • ES - MCCS - ODRC JMEWS	AutoCAR verifications as required
613	5	The contractor shall create and/or maintain and manage PC applications for use by ISS Flight Surgeons, ISS BMEs, and members of the medical operations team including the Mission Planning Tool	Monthly updates to PC applications and summary distributed to stakeholders
613	6	The contractor shall obtain elevated privileges to MCCS Mission Support Environment PCs and install unique Surgeon applications including those that require and/or provide an interface to the Electronic Medical Record.	Install and support unique FS required PC applications as needed
613	7	The contractor shall develop and/or maintain Software Classification and Safety Criticality Determination IAW JPR 7150.2 for Medical Operations software configuration items	JF 1704 completed as required

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
613	8	The contractor shall manage changes to the MCC console software through the medical operations software management plan process, which will require documenting the rationale and historical summary of any changes made.	Monthly updates of software documentation
613	9	The contractor shall archive all biomedical data obtained and produced during ISS increments, including ECG data obtained during EVAs and medical data down-linked from Acoustics, Health Maintenance System, and Countermeasure System CHeCS devices	Weekly archival of biomedical data files
613	10	The contractor shall distribute biomedical data produced and obtained during ISS increments, including medical data down-linked from CHeCS devices.	Weekly distribution of biomedical data files
613	11	The contractor shall support CHeCS remote commanding validation testing through Operations Readiness Tests.	Updated CHeCS commands, technical support for up to 1 ORT per week
613	12	The contractor shall provide analyses of CHeCS 1553 telemetry and command products and other products associated with delivery of medical data.	Updated CHeCS commands, telemetry, documentation or data delivery plan as required
613	13	The contractor shall provide data support for CHeCS functional analysis, end-to-end testing, and verification.	Technical support as required
613	14	The contractor shall provide analysis and support for ISS to MCCS to Mission Extended Medical Enterprise (MEME) network connections that allow for uplink, downlink and routing of medical data	Analysis and technical support as required
613	15	The contractor shall provide analysis and support for routing of medical data and/or reports to International Partners including MCCS to International Partner network connections and secure email transmissions	Analysis and technical support as required
613	16	The contractor shall provide analysis, testing, integration and verification of Surgeon/BME software, network architecture and connections, and operations within Mission Control Center 21 (MCC21)	Testing, verification, and integration support as required

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
613	17	The contractor shall participate in the following Mission Operations Directorate meetings: ISS Command and Telemetry Team (ICATT), Ground Segment Control Board (GSCB), Mission Systems Control Panel (MSCP), User Applications Working Group (UAWG), Operations Integration Working Group (OIWG), and Mission Control Center 21 (MCC21) meetings relevant to Surgeon/BME.	Up to 8 action item resolutions and technical support per week
613	18	The contractor shall support the Multilateral Medical Operations Panel (MMOP) and Medical Information & Technology Working (MITWG) Group functions and meetings as needed. This includes yearly participation at the MITWG face-to-face meeting.	Technical support and briefings as required
613	19	The contractor shall provide support to CHeCS software residing on the Portable Computer System (PCS), Space Station Computer (SSC) or SSC Server via: • Review of PCS Change Requests impacting CHeCS applications • Verification of CHeCS applications on PCS/Consolidated Design and Data Team (CDDT) Master Listings • Validation of CHeCS PCS/CDDT displays • Participation in the SSC Weekly meeting • Review of SSC Change Requests impacting CHeCS software • Coordination with Mission Operations Directorate flight controllers responsible for SSCs	Technical support as required
613	20	The contractor shall provide OCAMS templates and/or scripts to assist BME flight controller data acquisition and downlink requests	Provide OCAMS templates/scripts as required
613	21	The contractor shall provide interface support to Mission Operations Facilities Division concerning Surgeon and BME Mission Control Center operations	Technical support and action item resolution; as required
614		**Multilateral Medical Management Support**	
614	1	The contractor shall manage the meeting schedule for the weekly Space Medicine Operations Team (SMOT)	Weekly schedules and agendas

614	2	The contractor shall provide support to track action items, prepare minutes and agendas for the weekly SMOT	Weekly agendas, minutes, Motions and Actions Summaries, Action Tracker
614	3	The contractor shall maintain SMOT historical data	Archived SMOT records (minutes, actions, etc)
614	4	The contractor shall provide coordination support to the twelve MMOP WGs in the form of meeting arrangements and minutes	As required completed agendas, minutes, requests for Russian travel, TTI support forms
614	5	The contractor shall assist in the development of briefings and protocols/documentation for the twelve MMOP Working Groups	Briefings, Protocols, Documents per meeting
614	6	The contractor shall provide an Executive Secretary function, with fluency in Russian, and administrative support to the Multilateral Medical Operations Panel (MMOP) for the purpose of scheduling up to ten videoconferences and up to two face-to-face meetings per year; coordinating agendas for all videoconferences and meetings; preparing minutes for all videoconferences and meetings; maintaining a log of all assigned actions; posting to a website all documents and presentation materials from videoconferences and meetings	Monthly schedules, agendas, minutes, motions and action summaries; maintenance of action tracker as needed
614	7	The contractor shall meet/teleconference with the MMOP Chair on an as needed basis.	Agendas as needed
614	8	The contractor shall provide an Executive Secretary function, with M.D. expertise and fluency in Russian, and administrative support to the MSMB for the purpose of scheduling teleconferences (approximately once per month); coordinating agendas for all teleconferences; scheduling two face-to-face meetings per year and maintaining a log of all assigned actions.	Monthly schedules, agendas, minutes, memos, and action tracker follow-up.
614	9	The contractor shall review currently submitted data and individual ISS medical certification histories in preparation for the MSMB.	Up to 8 completed case reviews per monthly MSMB
614	10	The contractor shall review MSMB precedents for identified conditions requiring a special consideration or waiver.	Participation in up to 15 MSMB special consideration discussions per year
614	11	The contractor shall review relevant literature and coordinate risk assessment efforts with MSMB Members, Integrated Medical Model (IMM) personnel, clinical specialist consultants, and NASA or International Partner Flight Surgeons.	Participation in up to 8 MSMB risk assessment efforts per year
614	12	The contractor shall participate in pre-MSMB meetings with U.S. MSMB Chair	Monthly participation

614	13	The contractor shall process MSMB results/decisions including protocols, recommendation/request letters to agencies, and certification results to Flight Medicine Clinic (FMC), Flight Crew Operations Directorate (FCOD), and Multilateral Medical Policy Board (MMPB)	Monthly protocols, letters, memos
614	14	The contractor shall maintain MSMB historical data	MSMB records archived monthly
614	15	The contractor shall update entries in the MSMB tracking spreadsheets and the MSMB Medical Certification Database	Monthly database entry updates; report to MSMB Chair
614	16	The contractor shall maintain the MSMB Medical Certification database	Database updates as needed
614	17	The contractor shall be available for up to two Multilateral Medical Policy Board (MMPB) face-to-face meetings and up to two video teleconferences.	Quarterly requests for Russian travel, report presentations
614	18	The Contractor shall prepare the periodic MMOP and MSMB reports for presentation to the MMPB	Report Presentations as required by MSMB Chair or Chief of SCOD
614	19	The contractor shall provide support to the MMPB for the purpose of scheduling meetings (up to two face-to-face meetings and up to two video teleconferences), coordinating agendas, and preparing minutes.	Quarterly planning meetings: agendas, minutes, action tracker
614	20	The contractor shall maintain MMPB historical data.	Monthly archive of MMPB records
614	21	The contractor shall prepare, coordinate, and present the Mission Medical Readiness Statement from the MMOP for each ISS crew launch for delivery to ISS/OC.	Readiness statement per ISS crew launch
614	22	The contractor shall support the Multilateral Medical Operations Panel (MMOP) and Medical Standards & Health Evaluation Working Group (MSHEWG) functions and meetings as needed. This includes yearly participation at the MSHEWG face-to-face meeting.	Technical support and briefings as required
615		**Spaceflight Emergency Response Planning**	
615	1	The contractor shall manage the schedule for the Contingency Group	Monthly schedule
615	2	The contractor shall provide emergency and disaster administrative and technical expertise to assist in the development of new documents and changes to or development of new contingency documents	Monthly updates services for documentation
615	3	The contractor shall provide expertise to assist with travel in support of contingencies	Provide services for travel as required

615	4	The contractor shall coordinate meetings in support of Medical Operations activities (ISS and Russian Support).	Coordinate meetings prior to Soyuz launches for Med Ops Contingency activities
615	5	The contractor shall maintain and update the HH&P Contingency Action Plan (CAP) every other year and shall update once per PoP if required the following documents: Emergency Medical Services (EMS) Plan for Russia, Medical Operations portion of JSC Aircraft Mishap Plan (JPR 1040.27), ISS MORD (EMS Section), and Joint Medical Operations Implementation Plan (EMS Section).	Annual review and edit contingency documents and documents with relevant emergency plan sections
615	6	The contractor may be requested to go on call and be available 24 hours a day, 7 days a week to support HH&P. A request to be on call may be made during certain periods in support of ISS Operations, other Vehicle Operations, Hurricane support, or during other emergencies or mishaps involving any NASA or JSC facility or use of their assets.	Provide on-call support 24/7 and be available to respond to mishaps
615	7	The contractor shall interface, manage and provide any necessary medical inputs and changes to the Program Requirements Document (PRD), in support of ISS increments	Manage Medical Operation's inputs to ISS PRD Once per each ISS launch
615	8	The contractor shall research issues relevant for space vehicle contingency operations and other natural or man-made disasters to include business continuity of government operations	Quarterly report on relevant issues for contingency operations
615	9	The contractor shall develop and maintain briefings on contingency operations and Direct Return of crew and present these briefings to the flight surgeons (as required), the new astronaut classes (as scheduled) and to other personnel as requested.	Provide quarterly Contingency Operations training and briefings
615	10	The contractor shall review documents and be able to support operations relevant to work conducted with Port Mortuary Affairs and Armed Forces Medical Examiner System (AFMES)	Quarterly review of Contingency Operations related to Port Mortuary Affairs and AFMES
615	11	The contractor shall maintain Contingency Ops web and SharePoint content associated with subtask requirements	Quarterly update to web and SharePoint content
615	12	The contractor shall assist in the planning and support for Space and Clinical Operations' responsibilities in JPR 1040.4	Quarterly report of activity
615	13	The contractor shall assist and manage SD part in the Mishap Response, Search & Recovery training	Annual review and update of on-line course content

615	14	The contractor shall complete and remain current in all training specified in the JSC Implementation Plan for National Incident Management System in accordance with National Resource Framework (NRF) and JPR 1040.4. The Contractor shall maintain qualifications to support an SD role in the Emergency Operations Center or Field Incident Command Team	Maintain and deliver training records(ICS Level 100, 200, 300, 400 and 700 courses) 2 times per FY
615	15	The contractor shall assist Space and Clinical Operations to maintain accuracy and content of procedures in the EMS Plan for Russia as well as any other medical plans as they relate to Russian Operations.	Annual review and update of the EMS Plan for Russia
615	16	The contractor shall lead, coordinate, and manage up to two Soyuz Launch and/or Landing table tops	2 Table Top scenarios and debriefs per FY
615	17	The Contractor shall support SD management and the NASA Flight Surgeon in the Increment Management Center (IMC) for all Soyuz Launch and Landings	Support up to 8 IMC Operations for Soyuz launch and Landings per FY
615	18	The contractor shall participate in Soyuz Launch and Landing Telecoms and planning sessions	Attendance at Telecom and Planning Sessions As scheduled by sponsoring organization
615	19	The contractor shall update and disseminate appropriate SCO documentation prior to each Soyuz Launch and Landing (to include but not limited to the following: Master Notification List, Direct Return Route of Flight info and Hospital Contact Information)	Provide up to 8 Soyuz Launch and Landing Documents per FY
615	20	The Contractor shall be the HH&P interface with NASA/JSC Med-Evac Providers.	Support 1 meeting per month between Contractor and Med Evac Provider with 2 briefings to MOB per FY
615	21	The Contractor shall prepare and coordinate the DOD medical Briefing for USAF Medical Evacuation Crews prior to each Soyuz Landing	Up to 42 DOD Medical briefings per FY
615	22	The Contractor shall maintain specific Soyuz Launch and Landing Contingency Information and update on SCO SharePoint Site	Updated content for SCO Website and SharePoint 2 times per FY
615	23	The Contractor shall support Direct Return operations in loading and unloading support aircraft, in flight support as required and researching any potential new hardware needed in support of Direct Return operations.	Quarterly report on relevant issues for Direct Return operations
615	24	The Contractor shall review and update appropriate SCO sections of the HH&P Continuity of Operations Plan.	Annual document update
616		**Support to Developmental Spaceflight Programs**	

616	1	The contractor shall review and provide comments to NASA-STD-3001 NASA Space Flight Human System Standard Vol 1 and 2	Review and edit Standard documents as required
616	2	The contractor shall support program integration boards for CCP and CPC.	Meeting attendance as required
616	3	The contractor shall collect and integrate inputs from Space and Clinical Operations Division into Commercial Space Provider's requirement documentations	Spreadsheet with integrated comments to requirement documentation as required
616	4	The contractor shall provide SME's to review Certification Plan, Verification and Validation Plan, Hazard Reports, and Alternate Standards for each Commercial Spaceflight provider.	Spreadsheet with SME comments to plans and standards for each spaceflight provider as required
616	5	The contractor shall provide SME's to support Technical Meetings with each commercial spaceflight provider.	Meeting attendance as required
616	6	The contractor shall provide human health and performance technical expertise as requested by NASA to review and provide comments to MPCV documentation with respect to human health and performance discipline areas	Technical comments, presentations, spreadsheets as required
616	7	The contractor shall participate in program activities as requested by NASA and coordinate responses for human health and performance discipline areas for activities such as: • Participate in Program document reviews and design reviews, developing corresponding summary assessments • Develop positions and/or requirements interpretations for human health and performance issues Participate in Program certification planning and certification activities	Agendas, schedules, spreadsheets, presentations, e-mail messages, position/interpretations documentation, technical comments as required

Attachment L – 3 – 7 TO-RFP-07 – (ISSMP) ISS Medical Projects

1. **Title of Effort: 7.0 (ISSMP) ISS Medical Projects**
2. **Date of Request: October 31, 2014**
3. **Statement of Work Task Description**

The Human Research Program (HRP) ISS Medical Project (ISSMP) utilizes the ISS to obtain solutions to human health and performance problems and associated mission risks identified in the HRP Integrated Research Plan (HRP 47065, most current version). In preparation for these missions, ISSMP provides the tools and processes to test and flight validate research protocols and operational countermeasures onboard the ISS.

ISSMP provides limited support to International Partners based on existing hardware sharing agreements. The support includes giving Partners access to Human Research Facility (HRF) onboard facility hardware, ground hardware, and facilities; developing integrated human life science complements for crewmembers; scheduling Baseline Data Collection (BDC) and Informed Consent Briefings (ICB); and submitting integrated Johnson Space Center (JSC) Institutional Review Board (IRB) and Human Research Multilateral Review Board (HRMRB) packages, and submitting increment-based requirements to the ISS Program and ISS Payload offices.

The Task/Delivery Order (TDO) uses the ISSMP Launch Manifest (LS-73004D, most current change number) to track ISS increment configurations, launch dates, flight project mission assignments and crew complements, and on-orbit facility sustaining engineering tasks. This document is controlled by the ISSMP Configuration Control Board (NASA) and captures the current ISSMP flight configuration which thereby drives the schedules and Deliverables List within the TDO. The ISSMP Launch Manifest (LS-73004D, most current revision number) is available on the Technical Documentation and Information Center (TDIC) website (http://tdic.jsc.nasa.gov) and the ISSMP SharePoint site (https://spacesci.jsc.nasa.gov/BC/issmp/default.aspx).

The ISSMP Master Schedules detail the development and implementation milestones for each ISSMP sub-element. The completion dates for many of the specific Deliverables List defined in the TDO subtasks are documented in integrated increment schedules and detailed experiment/project schedules and are posted on the ISSMP Project Status SharePoint site (https://spacesci.jsc.nasa.gov/BC/issmp/issmp_mgmt/project_status/default.aspx).

Subtask 7.1 provides the necessary program management infrastructure for a successful flight program, including configuration management, information management (i.e. document publishing and ISSMP SharePoint management), project planning, and risk management. As flight projects are assigned to missions, this subtask also provides for the management of the integrated mission complements.

Subtasks 7.2 and 7.3 provide the science integration, crew training strategy and coordination, and on-orbit operations functions required to execute the integrated mission complements. These subtasks also maintain the necessary ground facilities for training; simulations; baseline data collection; and the in-flight maintenance and operation of the two Human Research Facility racks and experiment equipment on ISS.

Subtask 7.4 provides for the definition, development, and implementation of the individual flight projects assigned to ISSMP across multiple increment missions. This work includes requirements

definition and management, operational scenario development, initial crew procedure development, crew training, baseline data collection, and provision for real-time project expertise on console. The ISSMP Flight Queue Master List (LS 73005, most current version), also controlled by the ISSMP Configuration Control Board, contains the list of flight projects to be implemented from the HRP Integrated Research Plan (IRP).

Subtask 7.5 is focused on management of NASA-sponsored analog facilities physically residing at the JSC such as the Human Exploration Research Analog (HERA) as well as external field analogs both domestic and international such as Antarctic stations. Support activities include the integration of FAP processes into Human Research Program (HRP) sponsored analog missions, providing analog feasibility recommendations for HRP sponsored study complements, and planning, coordination and implementation support for HRP sponsored analogs physically residing at JSC.

4. Period of Performance

The period of performance is Fiscal Year 16 – 12 months Period of Performance

5. Product Requirements:

Subtask 7.1: Program and Increment Management

Subtask Overview:

This subtask details the requirements for the overall strategic and cross-increment and cross-flight management for the ISS Medical Projects. This includes development and maintenance of a tactical implementation plan for the project, regular communication of project performance to plan both formally and informally, development of briefing material for multiple audiences, lessons learned, document and library management, and ISS increment management across all functional areas.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
7.1		**Program and Increment Management**	
701		**Program Management**	
701	1	The contractor shall provide program management, risk management, and administration for the ISS Medical Project across the four T/DOs that ISSMP requirements reside.	12 ISSMP Monthly Customer Status Reports Fourth week of each calendar month
701	2	The contractor shall assist in developing inputs for the ISSMP status briefings for the HRP Quarterly Reviews and Program Planning and Budget Execution (PPBE)	4 quarterly report inputs 1 PPBE input
701	3	The contractor shall integrate procurements across the TDOs containing ISSMP requirements and provide a tracking plan for all hardware/software procurements.	Quarterly Procurement Status Matrix (4 for this PoP) Per the ISSMP Master Schedules
701	4	The contractor shall develop and maintain a Master Schedules data set for all elements of the project and maintain on the ISSMP SharePoint site.	Publish the ISSMP Master Schedules monthly (12 for this PoP) First week of each calendar month
701	5	The contractor shall represent ISSMP at programmatic level ESA telecons and coordinate IP issues.	Technical summaries for 12 ESA Telecons Per the ISSMP Master Schedules
701	6	The contractor shall incorporate changes to the ISSMP Launch Manifest and coordinate the changes across ISSMP.	8 changes Per the ISSMP Master Schedules

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
701	7	The contractor shall maintain a controlled access SharePoint site to post ISSMP documents and proposals in electronic format and update with new content as increment complements are defined.	1 set of controlled access privileges list 2 New Increment site creations 5 New Experiment Sites I-14 months
701	8	The contractor shall maintain a Risk & Opportunity SharePoint site containing the Risks & Opportunities documented by ISSMP team members and communicate Risk & Opportunity status and action closures to the customer.	12 Monthly Risk & Opportunity reports exported from SharePoint site this PoP Second week of each calendar month
702		**Information Systems**	
702	1	The contractor shall maintain a Configuration Management (CM) System for ISSMP, administer the Bioastronautics Planning System Configuration Management (BPS CM) database and conduct the ISSMP Configuration Control Board and Contractor Implementation Board meetings per LS-73001A.	Conduct up to 80 events Scheduled per the BPS CM tool
702	2	The contractor shall baseline, revise, configuration control, and publish project documentation to the TDIC or ISSMP SharePoint/Websites.	1 master list of all published document baselines and revisions for ISSMP Per the ISSMP Master Schedules
702	3	The contractor shall develop graphics for human in the loop deployed sketches (used for ISS Payload Engineering and Integration stage analyses)	10 sets of new operational sketches 10 updates to sketches Per the ISSMP Master Schedules

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
702	4	The contractor shall document the ISSMP Project-level processes and work instructions and post both to the ISSMP SharePoint site and to the HHPC Work Instruction Website.	1 Records list posting of the ISSMP Processes/work instructions this PoP.
702	5	The contractor shall manage NASA property assigned to ISSMP and participate in the NASA inventory audit annually	One complete inventory Once per Quarter
703		**Increment Management**	
703	1	The contractor shall develop an integrated set of increment requirements for each increment identified on the ISSMP Launch Manifest, manage the implementation of those requirements, deliver the dataset to the ISS Program, and close out the increment.	ISS Increment Resource Requirement Sets; for this PoP consisting of the quantities: 2 – Increment Planning Set 3 – Increment Implementation 2 – Increment Closeout Per the ISSMP Master Schedules
703	2	The contractor shall complete Certificate of Flight Readiness (CoFR) reports for each flight (Increment and Stage) which includes, open work tracking, and endorsements.	10 CoFR reports per PoP Per the ISSMP Master Schedules
703	3	The contractor shall develop flight manifests for each flight required per the ISSMP Launch Manifest and develop Change Evaluation Forms (CEF) and Manifest Request (MR) Loaders for submittal to the ISS program.	15 Initial Manifest submittals to ISS Program this PoP 14 Baseline Manifests at CIB per PoP 8 As Flown manifest baseline at CIB Per the ISSMP Master Schedules
703	4	The contractor shall submit ISSMP trash requirements to the ISS Program EZ trash list.	2 Increment Summary input this PoP Per the ISSMP Master Schedules

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
703	5	The contractor shall order IMS labels, submit data to PDL, coordinate distribution of the IMS labels, and track IMS label expiration dates.	6 set of orders for labels for new experiments this PoP. 8 set of orders for labels for re-flight experiments this PoP. Per the ISSMP Master Schedules
703	6	The contractor shall close out an increment with a compilation of lessons learned, both external for ISSMP process improvement and external, a 30-day postflight ISSMP Operational Accomplishments report, and a presentation summarizing the major accomplishments and challenges of the increment.	2 Increment Closeouts for HRP CCB. Per the ISSMP Master Schedules
703	7	The contractor shall coordinate an Operations Assessment (OA) for each new experiment selected for flight by HRP. Coordination will be performed as a Payload Integration Manager (PIM) function and will include representation from the Crew office and the appropriate members of the Payload Operations and Integration Cadre based on experiment activities. The PIM will ensure the proper products, defined by the Payloads Office, are delivered by the ISSMP Flight Projects teams and will document actions, minutes, and milestones for the next touch-point which is the Usability assessment.	5 OAs Within 2 months after Select for flight decision by HRP CCB

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
703	8	The contractor shall perform a Limited Life Inventory/Logistics tracking audit to verify on orbit supplies and shelf life/expirations and that launch logistics support the research complements on the current and subsequent two increments.	2 LLIL event with audit report Every 6 months at a given Increment I-3 months date
703	9	The contractor shall provide Increment implementation input, assumptions, and risk characterizations to new experiments collected via the Feasibility Assessment document.	5 Feasibility Assessments Upon receipt of experiment protocol and kick-off by Flight Projects
704		**FAP Program/Project Management**	
704	1	The contractor shall develop and update HRP project plans and schedules (IMS) in support of the Flight Analogs Project.	Publish the FAP Master Schedules monthly (12 for this PoP)
704	2	The contractor shall develop, analyze and provide recommendations for meeting project, objectives, reducing risks, and meeting overall budget and schedules.	Content for technical, budget and schedule reviews First week of each calendar month
704	3	The contractor shall track performance and assist with developing technical, budget and schedule reviews for HRP project reporting as well as overall project metrics	Project reports and metrics Continuous, Quarterly

Subtask 7.2: Science Integration
Subtask Overview:
This subtask provides for coordination and implementation of long duration science experiments sponsored by ISSMP and performed on the ISS. The subtask also provides for similar coordination and implementation for long duration science experiments on ISS that are sponsored by International Partners. Integrated science products as well as overall science coordination are provided for each ISS mission. The contractor will manage coordination and integration of science requirements with medical activities

as defined by the Medical Evaluation Documents (MED), Volume B (MEDB), Medical Requirement Integration Document (MRID), Experiment Document (ED), and Mini-ED documents. Additionally, tactical planning and strategic analysis of the experiment queue is performed to optimize experiment throughput, and maximize science return.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
7.2		**Science Integration**	
705		ISS Science Integration and Planning	
705	1	The contractor shall plan, prepare documentation, and obtain approval of the ISS human life science complement for United States On-orbit Segment (USOS) crewmembers.	Plan two (2) Increment Science Complement Per the ISSMP Master Schedules
705	2	The contractor shall plan and execute an informed consent briefing to solicit USOS crew participation in human life science investigations.	Execute an Informed Consent Briefing for four (4) Increment Per the ISSMP Master Schedules
705	3	The contractor shall develop products that document Baseline Data Collection (BDC) requirements and data sharing agreements, and facilitate logistical requests so that the increment complement is established and preflight BDC can occur.	Prepare for Science Operations and Preflight BDC for three (3) Increment Per the ISSMP Master Schedules
705	4	The contractor shall schedule and oversee the execution of all preflight BDC with USOS crewmembers	Execute preflight BDC for two (2) Increment Per the ISSMP Master Schedules

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
705	5	The contractor shall provide inputs to the postflight crew schedule and facilitate logistical requests so that the postflight BDC can occur	Prepare for postflight BDC for two (2) Increment Per the ISSMP Master Schedules
705	6	The contractor shall schedule and oversee the execution of all postflight BDC with USOS crewmembers and increment closeout.	Execute postflight BDC and increment closeout for two (2) Increment Per the ISSMP Master Schedules
705	7	The contractor shall evaluate and develop payload manifest options (aka Fly-off Plan) to maximize experiment throughput and overall science return for all flight experiments described in the Integrated Research Plan (IRP) and on the ISSMP Flight Queue Master List.	One (1) limited update to Fly-off Plan to reflect current state of active experiments Two (2) update, which corresponds with quarterly reviews. Per the ISSMP Master Schedules

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
705	8	The Contractor shall serve as the ISSMP Project Scientist, and as such, shall: • Review internal/external NASA-directed research proposals. • Provide inputs to human-use protocols for new investigations and participate in the presentation at the JSC Institutional Review Board (IRB) and Human Research Multi-lateral Review Board (HRMRB) • Represent ISSMP science requirements in negotiations and discussions with the Payloads office with regards to the Multi-Person Crew Vehicle and Commercial Crew and Cargo programs • Provide inputs to ISSMP Quarterly reports	1) Seven (7) research protocol reviews 2) Up to two (2) human-use documents per fiscal year 3) Verbal reports to the ISSMP Steering Committee and monthly status reports 4) Up to 3 quarterly reports Monthly per ISSMP Master Schedule Review
705	9	The contractor shall act as the coordinator for the continuing operations of the NASA Biological Specimen Repository protocol.	Maintain Repository Database including Informed Consent forms from one (1) Increment. Prepare annual renewal documentation for JSC IRB approval and other IRBs as required.
705	10	The contractor shall plan and execute science complements and consent briefings as needed for One-Year-Mission (1YM), as well as provide guidance to HRP elements and the International Science Office in coordination with Russian counterparts, including travel to support International meetings as necessary.	1Year Mission Milestone schedule, Second Informed Consent Briefing. Per the ISSMP Master Schedules
706		**IP Science Coordination**	
706	1	The contractor shall implement IP science coordination telecons on a regular basis with CSA/ESA/JAXA for strategic planning purposes.	Ten (10) meeting technical summaries Monthly
706	2	The contractor shall coordinate the scheduling and implementation of IP sponsored experiments BDC activities.	IP BDC Coordination for Two (2) Increment Per the ISSMP Launch Manifest (LS 73004 Rev C)

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
706	3	The contractor shall review and summarize impacts to the crew schedule and ISSMP workload for IP sponsored experiments that are added via Change Evaluation Form to the Payloads office.	Evaluate 10 CEFs Monthly

Subtask 7.3: Operations and Training
Subtask Overview:
The Operations organization implements human life sciences experiments over multiple International Space Station (ISS) increments and includes development, test, verification, and submittal of integrated operations products for all increments. The specific products include mission planning requirements, payload systems engineering, crew procedures, and data requirements and verification, real-time monitoring of ISS activities. The Operations organization develops integrated experiment and facility requirements to successfully accomplish inflight science goals and objectives. The tasks associated with this function occur preflight, inflight, and postflight. The Operations organization ensures that mission planning, photo/TV, crew procedures, mission data, and console requirements are documented, integrated, tested, and negotiated with the ISS program. In addition to the product development, the Operations organization provides support to the crew for ISSMP activities that are performed on the ISS.

The Training Organization performs analysis, designs, develops, and coordinates implementation of crew and Ground Support Personnel (GSP) training in accordance with ISS program requirements. Training is completed for each increment through the development of training strategies and plans designed to implement the requirements of each increment. Crew training tasks include design and development of lessons to include lesson plans and courseware, certification of instructors, and scheduling of training sessions, facilities, and instructors. Additional training tasks include the management, operation, maintenance, and upgrading of the Payload Development Laboratory (PDL) used for crew training. GSP Training tasks include the design and development of lessons to include lesson plans and courseware, certification of instructors, and scheduling of training sessions, facilities, and instructors in order to conduct GSP classes, operational exercises, and simulations.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
7.3		**Operations and Training**	
707		**Operations**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
707	1	The contractor shall supply inputs to initial Increment planning and develop supporting documentation.	2 Increment operations Planned Per the ISSMP Master Schedule
707	2	The contractor shall supply inputs to post Increment closeout; post increment metrics and Increment transition data	2 metric data sets, 2 increment transition data sets. Per the ISSMP Master Schedule
707	3	The contractor shall develop Increment operational products that accomplish ISSMP Increment objectives, verify supporting ground hardware and software, and manage ISSMP console facilities.	2 Increment Real-time Operations Prepared Per the ISSMP Master Schedule
707	4	The contractor shall provide real-time monitoring for ISSMP experiment and hardware activities identified in the ISSMP Launch Manifest according to the Operations Implementation Plan (OIP) and ISSMP Payload Operations Handbook (POH).	2 Increment Real-Time Operations Conducted Per the ISSMP Master Schedule
708		**Training**	
708	1	The contractor shall provide increment(s) specific training strategy & plans for the conduct of all required crew training.	2 Crew Training Strategy Plans Prepared Per the ISSMP Master Schedule
708	2	The contractor shall provide ISS prime and designated backup crews with the skills and knowledge necessary for the successful operation of all ISSMP on-orbit activities through the preparation, implementation, and conduct of required crew training.	2 Increment Crews Trained Per the ISSMP Master Schedule
708	3	The contractor shall provide a cadre of ground support personnel trained to support increment operations.	1 ISSMP GSP Teams Trained (complexity was reduced per the SA efficiency exercise) see definition table for specific reductions Per the ISSMP Master Schedule

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
708	4	The contractor shall manage and operate the Payload Development Laboratory (PDL) High Fidelity Mockup in JSC Building 9 for ISSMP activities.	12 (monthly) Facility Activity Reports 20 facility tours 12 facility management meetings 20 operations development activities (such as procedure development and verifications) Per the ISSMP Master Schedule
708	5	The contractor shall maintain the Payload Development Laboratory (PDL) and make modifications to maintain training configurations that reflect the configuration of the on-orbit facility as well as the most current HRP training requirements.	30 Per the ISSMP Master Schedule
709		**IP Support**	
709	1	The contractor shall setup for IP activities scheduled in the PDL, review IP real-time ops products developed for using HRF on-orbit hardware, activate and monitor HRF racks on console during IP use of the hardware, and develop ops and training inputs to new experiment letter agreements.	5 Setup activities for IP sessions in the PDL 5 IP console sessions 1 new experiment letter agreement inputs Per the ISSMP Master Schedule

Subtask 7.4: Flight Projects Subtask Overview:

This subtask provides for flight/ground requirements definition and implementation of integrated experiment systems for International Space Station Medical Project (ISSMP)-managed flight projects. Project management is provided for each flight project. Other tasks include, but are not limited to: requirement definition and documentation, utilization of existing on-orbit hardware/software, flight crew training, flight procedure development, integration of experiment systems, on-orbit operations, data collection, and systems troubleshooting. Complexity varies by project. The level of support expected of the contractor for the number and type of implementation products that the contractor shall deliver during the Period of Performance for this subtask is defined in Table 7.4-2 Flight Projects Implementation Matrix. The definitions of the experiment level of complexity (e.g., Level 1 through 5) are defined in the Table 7.4-1 Flight Projects Level of Complexity that precedes the implementation matrix.

Table 7.4-1 Flight Projects Level of Complexity

Level	Pre/Post-Flight Complexity	In-Flight Complexity	Flight Hardware/Software Complexity
1	Very low – Simple procedure such as sample collections with minimal schedule constraints	No In-Flight requirements, or simple data sharing/piggy backing (e.g., extra urine or blood tube)	Not Applicable
2	Medium/High – Limited number of sessions, but significant amount of time required that limits throughput (MRI's, early post-flight requirements)	Low – Easy to implement sessions with flexible scheduling and minimal to no console support or no requirements (pre/post only)	Low – Uses existing supplies/minimal to no up-mass or down-mass required
3	Medium – Multiple sessions with moderate time requirements	Medium – 3 to 5 sessions with some scheduling constraints, moderate console support	Medium – Uses existing equipment/supplies that requires consistent resupply; new but minimal COTS development
4	Medium – Multiple sessions with moderate time requirements and some schedule constraints	Medium/High – 4 to 8 sessions requiring real-time monitoring, significant crew time, and complicated procedures. Significant console support/coordination	Medium/High – Uses multiple hardware items, some requiring unique agreements for use (IP's, med ops), some nominal COTS development
5	High – Limited sessions but significant amount of time required with unique schedule constraints	High – 3 to 5 sessions with challenging, crew-time intensive operations with complicated procedures, real-time monitoring, and scheduling constraints. Significant console support/coordination and unique operations agreements	High – Uses multiple hardware items, some requiring unique agreements for use (IP's, med ops), some significant COTS development

Table 7.4-2 Flight Projects Implementation Matrix

Tasks/Products	FLIGHT H/W SUPPORT	INT'L PARTNER	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
ED Baseline Completed			-	-	4	1	-
Protocol Review Completed			-	-	2	2	-
SVT Completed			-	2	2	1	1
Phase III Safety Data Package Completed			-	-	3	1	2
PTDR Completed	1		-	-	3	-	1
Logistics Plan Maintained	1		2	14	12	5	1
ED Update Completed			-	12	8	4	2
Increment Operations Inputs Provided	2	2	-	16	13	5	2
Informed Consent Briefing Inputs Provided			-	18	12	5	3
Data Requirement Document Inputs Provided	2	2	-	14	14	4	2
Training Session Completed	15		1	1	46	23	14
BDC Session Completed			22	57	122	43	3
IRB Protocol Renewal Completed			2	21	16	5	1
Procedure Baseline Completed	1		-	3	1	1	1
Procedure Update/Review Completed	2	2	-	2	8	2	1
Hardware Manifest Inputs Provided			-	4	15	4	1
Project Closeout Completed			-	-	3	-	-

Tasks/Products	FLIGHT H/W SUPPORT	INT'L PARTNER	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Complex In-flight Activity Support Completed	50		-	-	6	35	4
Moderate In-Flight Activity Support Completed	9		-	21	52	16	4
Simple In-Flight Activity Support Completed	12	3	8	27	47	3	4
VDD Baseline Draft Completed			-	2	2	-	-
VDD Update Review Completed	1		-	4	1	-	1
PDRT/IDAGS Review Completed			-	2	-	-	-
Software Integration Support Provided			-	3	1	-	1
HOD Baseline Completed			-	-	-	-	-
HOD Update Completed	2		-	-	-	-	1
Experiment Letter Review Completed		2	-	-	-	-	-
Monthly Document Reviews Completed	12		24	153	91	36	12
Project Management and Status Reporting Completed	12	12	24	176	112	44	12

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedule
7.4		**Flight Projects**	
710		**Flight Hardware Support**	
710	1	The Contractor shall implement hardware support for Increments applicable increments during the period of performance.	1 hardware implementation (see Table 7.4-2 for "Flight Projects Implementation" matrix) Per ISSMP Master Schedule
710	2	Experiment Implementation	1 hardware implementation (see Table 7.4-2 for "Flight Projects Implementation" matrix) Per ISSMP Master Schedule
711		**Feasibility Assessments**	
711	1	The Contractor shall complete feasibility assessments for new experiment protocols	4 Feasibility Assessments Completed Per ISSMP Master Schedule
712		**Flight Projects Management**	
712	1	The Contractor shall provide project management and risk management for experiments in development and implementation.	12 Project Management & Status Reporting Per ISSMP Master Schedule
712	2	The Contractor shall assess change requests for impacts to project development and implementation and reassess project risks	12 Change Request Reviews Completed Per ISSMP Master Schedule
712	3	The Contractor shall assess budget impacts and risk associated with the development and implementation of new experiments.	4 Feasibility Assessment Inputs Provided Per ISSMP Master Schedule
712	4	The Contractor shall provide a Basis of Estimate for fiscal year planning for existing and anticipated experiments	1 BOE Inputs Provided Per ISSMP Master Schedule
712	5	The Contractor shall ensure training requirements are met and a basic skill set for project support is maintained	12 Staff Training Completed Per ISSMP Master Schedule
713		**International Partner Experiments**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedule
713	1	The Contractor shall implement international partner experiment support for applicable increments during the period of performance.	Experiment Implementation as defined by ISSMP (see Table 7.4-2 for "Flight Projects Implementation" matrix) Per ISSMO Master Schedule
714		**Experiment Implementation**	
714	1	The Contractor shall define and implement the experiments for applicable Increments during the period of performance.	Experiment Implementation as defined by ISSMP (see Table 7.4-2 for "Flight Projects Implementation" matrix) Per ISSMP Master Schedule

Subtask 7.5: Flight Analogs Project
Subtask Overview:
The contractor shall provide support for NASA-sponsored analog facilities physically residing at the JSC such as the Human Exploration Research Analog (HERA) as well as external field analogs both domestic, such as facilities provided by other NASA centers, and international, such as Antarctic stations. Support activities include providing analog feasibility recommendations for HRP sponsored study complements, and study complement planning, coordination and implementation support for HRP sponsored analogs physically residing at JSC. Support includes project administration and management, data management, integration and implementation, subject recruitment and screening, medical and psychological resource support and subject support as well as HERA facility management and maintenance. This support will be provided for the planning and integration of two HERA campaigns (one 14-day and one 30-day), and implementation of one 14-day campaign with four missions consisting of a four person crew. This subtask will also manage the lease for storage of the FAP hardware and supplies.

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
7.5		**Flight Analogs Project**	
715		**Project Management**	
715	1	The contractor shall track project performance metrics.	HERA and Other Analog performance metrics Quarterly

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
715	2	The contractor shall provide project management and coordination of the FAP, including interfaces with HRP Elements, SK Laboratories, Test Subject Screening, and NASA assigned projects utilizing the FAP services.	Daily oversight of project performance and requirements Daily
715	3	The contractor shall document, analyze and make recommendations based on lessons learned across FAP.	Lessons Learned Report that combines inputs across all activities and functions within FAP including those from UTMB, SK laboratories, PIs and FAP operations NTE 1 per fiscal year
715	5	The contractor shall update and revise JSC-62982 Team Member Training Plan for FAP.	Draft revision of the Team Member Training Plan NTE 1 per fiscal year
715	6	The contractor shall update and revise the FAP Operations and Implementation Plan which shall include a HERA Severe Weather Plan.	Draft revision of the Operations and Implementation Plan NTE 1 per fiscal year
715	7	The contractor shall update and revise the FAP Off Nominal Reporting Process.	Draft revision to the Off Nominal Reporting Process NTE 1 per fiscal year
715	8	The contractor shall develop critical path schedules for each study to include major tasks, Deliverables List or milestones.	Critical Path Schedule Quarterly
715	9	The contractor shall implement configuration management for FAP per JSC-62844 FAP Configuration Management (CM) Plan.	1. CR submittals 2. FAP CCP participation and minutes 3. FAP CCP directives Monthly
716		**Human Exploration Research Analog (HERA)**	
716	1	The contractor shall coordinate and implement material procurement and matrix skill requisition for HERA facility maintenance and operations in support of HERA missions.	1) Procurement of materials for facility upgrades and maintenance 2)Status report 1) Per campaign schedule 2) Weekly

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
716	2	The contractor shall develop and maintain a HERA Configuration Document.	Draft version of the HERA Configuration Document Per ISSMP Master Schedule
716	3	The contractor shall develop and maintain a HERA Maintenance Plan.	Draft version of the HERA Maintenance Plan Per ISSMP Master Schedule
716	4	The contractor shall maintain a pool of five laptops and iPads for HERA operations.	Five user ready laptops and iPads Per mission schedule
716	5	The contractor shall maintain HERA console support systems.	User ready console support system Per mission schedule
716	6	The contractor shall coordinate and maintain implementation of a communication system.	Communication system for HERA mission support Per mission schedule
716	7	The contractor shall maintain a video surveillance system.	Functional video surveillance system Per mission schedule
717		**Integration & Implementation**	
717	1	The contractor shall coordinate with the Test Subject Screening group for subject solicitation and selection for HERA missions.	Subject selection criteria for Test Subject Recruitment Form (NTE 2 form updates per fiscal year) Per mission schedule
717	2	The contractor shall provide coordination for screening schedules, transportation logistics, tracking subject status and screening results for HERA missions.	Status report Weekly
717	3	The contractor shall perform an assessment of research protocols and make recommendations of their integration into selected campaigns.	Recommendation for integration into HERA Campaigns (NTE 15 assessments per fiscal year) Per Study Schedule
717	4	The contractor shall provide coordination and implementation of Investigator Working Group (IWG) forums and post study PI Data Debrief sessions for the 14-day missions.	IWG and Debrief (up to two IWGs and three Data Debrief per fiscal year Per Study Schedule

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
717	5	The contractor shall assess and coordinate requirements for the 30-day HERA mission.	Working group and requirement capture for 30-day missions Per critical path schedule
717	6	The contractor shall perform crew and support team debriefs following each HERA mission.	Crew and GSP debriefs (four per fiscal year) Per mission schedule
717	7	The contractor shall develop, plan and implement mission scenarios and payload activities for each HERA Campaign.	Mission scenario (NTE one per fiscal year) and payload activities as required per campaign requirements Per campaign schedule
717	8	The contractor shall coordinate collection of and document Principle Investigator (PI) science requirements.	Preparation and maintenance of PI specific Science Requirement Documents (SRD) (NTE 20 SRDs per fiscal year) Per campaign schedule
717	9	The contractor shall coordinate availability of facility and mission data for PI use.	Facility and mission data Per mission schedule
717	10	The contractor shall develop and maintain procedures for all facility and payload activities and prepare and format all PI procedures for HERA missions.	Final facility, payload and PI procedures Per mission schedule
717	11	The contractor shall coordinate delivery and set up of PI-unique, dependent-project, and project-specific hardware and supplies to HERA.	Delivery and setup of hardware and supplies (NTE 4 missions per fiscal year) Per Study schedule
717	12	The contractor shall prepare, coordinate, and participate in Test Readiness Reviews (TRR), as appropriate.	TRR package (NTE 1 new and 1delta-TRR package per fiscal year). Assumed concurrence two weeks following submission unless otherwise noted Per Study Schedule
717	13	The contractor shall prepare, maintain and update the Integrated Requirements Document (IRD) for HERA campaigns.	HERA IRD (NTE 1 new and 1 delta per fiscal year) Per ISSMP Master Schedule

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
717	14	The contractor shall interface with elements, laboratories, and PIs to integrate and implement the defined study requirements. The contractor shall assure that all necessary requirements are implemented throughout the study.	Status reports Daily during mission operations
717	15	The contractor shall coordinate transport for all biological samples as required.	Coordination of biological sample transport (NTE 14 transports per mission and NTE 4 missions per year) Per ISSMP requirements
717	16	The contractor shall maintain integrated daily testing schedules for all HERA missions.	Daily testing schedule (NTE 4 per fiscal year) Per campaign mission schedule
717	17	The contractor shall provide coordination and oversight of all operations performed in HERA.	Weekly activity status Per campaign mission schedule
717	18	The contractor shall provide real-time on-site and on-call support for all HERA missions.	Two GSP 24/7 Real-time support for HERA missions Per mission schedule (NTE 4 14-day missions per fiscal year)
717	19	The contractor shall document all off-nominal situations that occur during mission operations.	Summary of all off-nominal situations (NTE four per fiscal year) Per mission schedule
717	20	The contractor shall prepare and provide a preliminary and final Operations report on each HERA mission stating how well each mission requirement was met. Final report shall include PI data status, mission lessons learned and a relevant crew debrief summary.	Mission Operations Report 1) Preliminary (NTE 4 per fiscal year) 2) Final (NTE 4 per fiscal year 1) 1-day post mission, 2) 45-days post mission
718		**Subject Support**	

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
718	1	The contractor shall provide remuneration for research participants for Phase II screening, orientation, informed consent briefing, training, study participation and post-study testing.	1. Remuneration for test subjects for study participation up to 16 HERA subjects 2. Remuneration for test subjects post study testing (up to 16 subjects per fiscal year) 3. Remuneration for screening, training and orientation (up to 24 HERA subjects per fiscal year) 1. Through-out the mission 2. Upon completion of post-mission testing 3. Upon completion of screening, training and orientation activities
718	2	The contractor shall provide travel for research participants for Phase II screening, study participation and post-study testing.	Arrange travel for research participants 1. Up to 26 candidates for Phase II screening 2. Up to 15 FARU 3. Up to 4 sessions for post-study testing Prior to: 1. Scheduled Phase II screening 2. Admission date 3. Scheduled post study testing
718	3	The contractor shall provide mission consumables.	Crew hygiene needs; food; water; facility housecleaning; supplies, etc. Per mission schedule
719		**Medical and Psychological Resources**	
719	1	The contractor shall provide coordination of medical monitoring 24/7 during mission operations at HERA per JSC IRB guidelines and for all crew Private Medical Conferences during HERA missions.	Medical Monitor Schedule Per Medical Monitoring Requirements and IDTS
719	2	The contractor shall identify and coordinate additional project-level FAP-specific subject screening requirements.	Screening requirement coordination (NTE 4 per fiscal year) As required per mission schedule
719	3	The contractor shall develop a cost effective plan minimizing risk to subject participation and overall HERA mission objectives for long duration missions utilizing methods such as benchmarking NASA/Non-NASA analog facilities.	Draft Long Duration Analog Psychological Support Plan Per ISSMP Master Schedule

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
719	4	The contractor shall provide psychological screening for all HERA crew candidates per approved Psychological Support Plan.	Psychologically qualified crew members (NTE 30 per fiscal year) Per mission schedule
719	5	The contractor shall gather, maintain and report basic metrics regarding its activity. Examples of basic metrics are number of subjects screened, number of rounds per week, number of training events, etc.	BHP activity metrics report (NTE 4 reports per PoP) Quarterly
719	6	The contractor shall intervene as appropriate to interrupt negative psychological or behavioral trends, offset counterproductive facility conditions, promote adaptation and motivation, or advocate any other changes which are in the best interest of the psychological condition of a subject or of the overall success of the primary research study.	Provide on-call support and intervene to address psychological concerns. (NTE support for four 14-day missions and 6 interventions per fiscal year) Per mission support schedule
720		**Field Analogs**	
720	1	The contractor shall participate in reviews of proposed studies.	Written inputs (NTE 2 per fiscal year) Per ISSMP Master Schedule
720	2	The contractor shall provide an update to the HRP 5-year Analog Fly Off Plan.	Draft update to the HRP 5-year Analog Fly Off Plan (NTE 2 update per fiscal year) Per ISSMP Master Schedule
720	3	The contractor shall perform pre-and post-mission planning activities including facilitating hardware shipping, crew training, science and operations planning, and post mission debriefing/lessons learned.	Lessons Learned brainstorming activity (NTE 1 analog mission per fiscal year) Per mission schedule
720	4	The contractor shall provide an update to the FAP Analog Implementation Plan (AIP).	Draft update of the AIP (NTE 1 per fiscal year) Per ISSMP Master Schedule
720	5	The contractor shall facilitate updates to the FAP Analog Assessment Tool.	Draft revision of the FAP Analog Assessment Tool content (NTE 1 per fiscal year) Per ISSMP Master Schedule

WP No.	Rqmt No.	Requirement/Tasks	Deliverables List and Schedules
720	6	The contractor shall facilitate updates to the analog study resource worksheet template capturing single study requirements.	Draft revision of the resource worksheet template (NTE 1 per fiscal year) Per ISSMP Master Schedule

Attachment L – 3 – 8 TO-RFP-08 – JSC Clinical Operations

1. Title of Effort: 8.0 JSC Clinical Operations

2. Date of Request: October31, 2014

3. Statement of Work Task Description:

Under this Task Delivery Order (TDO), the contractor will respect the privacy and administrative confidentiality of all medical data as outlined in the Privacy Act of 1974 as Amended, and in conformance with applicable federal, NASA and JSC policies.

The Contractor will provide all necessary resources to establish and conduct a comprehensive program that fulfills the defined requirements for Occupational, Emergency, and Preventive Medicine, Flight Medicine, Occupational Health, and Human Test Support at JSC, Sonny Carter Training Facility (SCTF), Ellington Field, White Sands Test Facility (WSTF), facilities in Russia housing NASA civil servants and contractor personnel, and other potential remote locations (domestic and international) as determined by the Technical Monitor (TM).

The Contractor will be responsible for operation or support of the following programs in the Occupational Health Branch of Space and Clinical Operations Division:

- Flight Medicine Operations
- Occupational Medicine Operations including WSTF
- Clinical Laboratory Operations
- Pharmaceutical Operations
- Human Test Subject Operations
- Human Test Support

The Contractor will provide all resources and support required to support clinic operations, including provider, nursing, and medical staff support services, and ancillary services such as laboratory, pharmacy, medical imaging, health information management, and the management of the test subject screening services.
The contractor will be responsible for collection, processing, storage and maintenance of the NASA Biological Specimen Repository. The contractor will be responsible for conducting and maintaining an inventory of biomedical specimens using Specimen Tracking and Inventory System (STIS).

The Contractor will provide administrative and technical support to periodic internal and external program audits including those by Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP), NASA Headquarters (HQ) Office of the Chief Health and Medical Officer (OCHMO), NASA HQ Safety or Environmental Functional Reviews, and other outside agencies and prepare audit reports and follow up reports to respond to any audit findings. The Contractor will comply with all International Organization for Standardization (ISO) 9001 standards and requirements including the compilation of TDO metrics. Customer satisfaction surveys will be conducted regularly to assure quality objectives are achieved. The Contractor will also comply with all .NASA and OSHA safety and health standards

The contractor will provide technical and administrative support to the Human Test Support program at the Neutral Buoyancy Laboratory, for the Astronaut Strength, Conditioning and Rehabilitation Program, and the wellness program located at White Sands Test Facility.

The contractor should leverage and consolidate similar resources across different sub-tasks to the maximum extent possible.

4. **Period of Performance: Fiscal Year 16 – 12 month Period of Performance**
5. **Subtasks**

Subtask 8.1 Flight Medicine Clinic Operations

This subtask is based on current clinic staffing and patient load. Services will be provided consistent with a Flight Medicine Clinic staffed by 3 civil servant physicians, providing services commensurate with approximately 131 visits each month. The schedule for completion of deliverables is based on this level of activity.

The contractor will provide mission and technical support for the JSC Flight Medicine Program (FMP) to include physical exams, administrative services, Aeromedical certification, medical record management, mission support, billing, outside consultant coordination, and hazardous duty certification. The program will be either The Joint Commission (TJC) or Accreditation Association for Ambulatory Health Care (AAAHC) or similarly compliant; however, certification is not required.

The personnel assigned and utilized for performance of this task order will possess all licenses, training, registrations, certifications, and certificates required by NASA Headquarters and JSC, as well as Federal, State, and local governments. The Contractor will identify and document all certifications, licenses, registrations, and training requirements for each staff position. The Contractor will provide this information and the status of each requirement as defined in the Data Requirements Document (DRDs).

The Contractor will ensure that:

•All clinical personnel are current in Healthcare Provider Basic Life Support (BLS) and maintain currency.

•All clinical personnel, with the exception of Emergency Medical Technician-Basics (EMT-B), are current in Advanced Cardiac Life Support (ACLS) and maintain currency.

•All nurses assigned to the JSC clinic are registered nurses (RN) or licensed vocational nurses (LVN) with current licenses to practice in the state of Texas.

The Contractor will participate in all JSC Safety and Health programs as requested by the Technical Monitor (TM).

As applicable, the Contractor will implement system safety engineering tasks for flight and institutional program activities and products in accordance with the schedule and applicable flight and institutional requirements in the contractor developed and NASA approved system safety program plans.

The Contractor will conduct risk analyses of all activities and products. The contractor will then develop and implement risk management techniques to eliminate or control risks specified by NASA monitor.

The Contractor will provide administrative and technical support to periodic internal and external program audits including those by OSHA VPP, NASA Headquarters (HQ) Office of the Chief Health and Medical Officer (OCHMO), NASA HQ Safety or Environmental Functional Reviews, and other outside agencies, and for Technical Interchange Meetings (TIMs) as required by the Occupational Health Branch.

The Contractor will procure and maintain all pharmaceuticals, supplies, and equipment that are used in all functional areas defined in this task order, including, but not limited to, all immunizations required by local, State, Federal, or International laws or regulations will be provided by the Contractor to JSC civil service personnel, assigned Armed Forces personnel, and contractor employees, and the annual JSC Flu Shot program.

The Contractor will facilitate administrative, laboratory, technical, scientific, mentoring, and logistics (for example but not limited to: desk space, office supplies, phone, computer etc) support to JSC Clinic student programs. These student programs will include, but not be limited to: summer students, co-ops, and aerospace or occupational medicine residents. The salary costs of these individuals will not be the responsibility of the Contractor.

The contractor will provide project management or support of the following Occupational Health Branch areas: Patient information and data flow, quality assurance/quality metrics, and clinical practice guidelines.

Health Information Services

The contractor will implement EMR modules and system interfaces to enhance implementation of the Clinical Practice Guidelines as they are developed and introduced into clinic processes, and to aid in the capture, storage, management of medical images, and maintain the system after implementation.

The contractor will support orders entry of mission-related medical testing. Current practice management and clinical activities will be evaluated to identify areas with potential process improvement and recommendations for future process improvement projects will be presented to NASA management for consideration.

The contractor will organize and maintain paper and electronic medical records, distribute medical reports to providers, implement and maintain tracking processes for routine and diagnostic medical tests, generate reports from the medical records, incorporate external medical reports into patient charts, perform data migration activities, and participate in process improvement and workflow engineering activities. New EMR Clinical List Updates made by clinical staff to document clinical encounters and annual physical exams for all personnel will be reviewed to ensure that all diagnoses and procedures are properly and

accurately coded in the EMR. In addition, the contractor will access data for official requests as needed in accordance with established policies and processes and will validate the requestor's right to access this data.

The Contractor will utilize, and upgrade as appropriate, the existing JSC EMR which supports the JSC Clinic. The Contractor will plan, implement, and coordinate development of the EMR while discouraging dependence on paper medical records for patient care with the goal of eliminating archival paper records.

The contractor will develop and implement a plan to convert patient care data stored in legacy systems and deteriorating media, into a usable and sustainable format.

The Contractor will meet the standards required by the Privacy Act of 1974 as Amended in its management of patient medical records.

The Contractor will utilize, and upgrade as appropriate, the existing JSC EMR System (EMRS) which supports both the OMC and FMC. The Contractor will plan, implement, and maintain development of the EMRS. The overall OMC and FMC EMR system is managed through the Bioastronautics contract.

The contractor will be compliant with the standards of the Privacy Act of 1974 as amended, and the Health Insurance Portability and Accountability Act (HIPAA). The contractor will develop and implement processes to ensure compliance with these acts.

The contractor will be responsible for payment of all medical bills incurred by the active astronaut population.

Clinical Practice

First aid treatment and emergency care will be provided to any astronaut, Flight Director, or AOD personnel who become ill or are injured whether onsite at JSC, SCTF, or while conducting NASA operations at Ellington Field or as directed by the TM for other locations in the Clear Lake area. Providers and clinical staff will have adequate capabilities to treat those emergencies related to the nature of the operations at JSC and such items as minor suturing, imaging interpretations, labs and diagnostics related to workplace exposures, and other minor workplace trauma. Such capability will be available during duty hours and at additional times as requested by the TM. The Contractor will make a reasonable attempt to treat minor mishaps; such treatment, however, is at the discretion of the attending provider, who may request transport of any patient to another health care facility as deemed appropriate.

Medical Imaging Operations

The Contractor will operate the onsite imaging, including X-ray and ultrasound, services located on-site at JSC. X-ray and ultrasound preparation and interpretation will be provided in conjunction with the medical treatment and health examination programs.

The Contractor will provide quality assurance administration of Picture Archiving and Communication System (PACS) which supports the capture, archival storage, access, and integration of all NASA

diagnostic imaging data products (for example but not limited to: ECG, Cardiovascular US, and Radiology). It is comprised of 3 separate but integrated products:

1) Synapse Radiology

2) Synapse Cardiovascular

3) Epiphany's Cardiosoft

Patient records will be kept using the PACS and the EMR. Records of equipment adjustments and maintenance will be maintained according best practices.

The contractor will assist the radiation health officer in determining occupational medical exposures to radiation.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
8.1		**Flight Medicine Operations**	
801		**FLIGHT MEDICINE CLINICAL SERVICES**	
801	1	The contractor shall manage and operate the onsite JSC Optometry Clinic providing optometric care and consultations for astronauts, AOD flying personnel, and NASA flight surgeons (on a space available basis), as well as, research dedicated to the identification and resolution of potential optometric problems in human space flight.	Staffed Optometry Clinic up to 30 hours/week and as needed based on crewmember return schedule
801	2	The contractor shall coordinate the Astronaut Hearing Conservation program that includes identifying patients at annual physical exam with special testing needs or who require follow-up; data entry of audiometric testing, data review, tracking and follow-up of abnormal tests, coordinate and follow-up consultations.	Monthly activity report
801	3	The contractor shall perform follow-up for all astronaut injuries and illnesses, including report of clinically abnormal results to patients, arranging for outside medical testing, and assisting employee management in return to work issues.	Up to 1000 Clinic encounters/visits per month
801	4	The contractor shall report both confirmed and suspected occupational injuries and illnesses on astronauts, AOD personnel, and Flight Directors to S&MA and Industrial Hygiene for hazard control and investigation within one hour of clinic presentation.	Up to 20 Occupational injury reports per month

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
801	5	The contractor shall provide to astronauts, Flight Directors and AOD personnel, assigned Armed Forces personnel, all immunizations required by local, State, Federal, or International laws or regulations.	Up to 550 Immunizations administered per month
802		**FMC Administration**	
802	1	The Contractor shall ensure that all personnel assigned and utilized for performance of this task order possess all licenses, training, registrations, certifications, and certificates required by NASA Headquarters and JSC, as well as Federal, State, and local governments.	Monthly status report
802	2	The contractor shall manage and oversee the credentials of all physicians providing medical care in the JSC Clinic. This credentials management process will include primary source verification.	Monthly credentials report
802	3	The Contractor shall identify and document all certifications, licenses, registrations, and training requirements for each staff position.	Quarterly status report
802	4	The contractor shall maintain and update a communication plan.	Annual review and update of Plan
802	6	The contractor shall maintain Flight Medicine Clinic web content associated with subtask requirements	Monthly review of web content
802	7	The contractor shall assist in scheduling of required exams and ancillary testing with other clinics, outside consultants and diagnostic centers.	Scheduling of exams , additional testing and consultations as needed
802	8	The contractor shall assist in creating the monthly provider clinic schedules	Monthly provider clinic schedules
802	9	The contractor shall identify personnel requiring medical certification exams based on assigned job duties and occupational exposure.	List of personnel requiring medical certification; monthly
802	10	The contractor shall maintain and update the JSC Clinic Personnel Phone List/Database and verify accuracy.	Bi-monthly updated FMC phone contact database distributed to clinic staff: hardcopy and electronic format
802	11	The contractor shall supply current medical reference materials for the JSC Clinic.	Annually updated medical reference materials available in the JSC Clinic: hard copy and/or electronic subscription
802	12	The contractor shall assist with revisions to the JSC Clinic Policies and Procedures materials and documentation for all clinic activities.	Annual review and revisions as required of all clinic policies and procedures

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
802	13	The contractor shall contact, maintain and update a current list of medical consultants.	Bi-annually updated list of consultants distributed to clinical staff and Mission Control Center (MCC) Flight Surgeon console
802	14	The contractor shall assist clinic process improvement efforts, including quality assurance activities, following Joint Commission, AAAHC or similar guidelines. This includes assistance with policy revision, documentation, meeting coordination, project administrative services, and other requirements as needed	As required clinic process improvement efforts Status Reports
802	15	The contractor shall provide customized data reports to be used in the reporting of metrics as requested by the TM.	Metrics chart as required
802	16	The Contractor shall provide all necessary clinical supplies to support the operation of this subtask.	Active inventory management as required
802	17	The contractor shall schedule, organize, and coordinate the agenda and the minutes for the monthly JSC Clinic Staff Meeting.	Monthly JSC Clinic meeting agenda and minutes
802	18	The contractor shall coordinate and staff the JSC Clinic Emergency Management Plan when enacted.	Annual update and maintenance of the JSC Clinic Emergency Management Plan Clinic staffing when plan is enacted as required by JSC
802	19	The contractor shall provide clinic management for Flight Medicine Clinic activities	Daily activity coordination
802	20	The contractor shall support external audits and inspections in the JSC Clinic as directed by the NASA TM.	Up to 2 Audit reports per FY
802	21	The contractor shall manage the clinic and physician's schedules to accommodate constraints including but not limited to meetings, requests for decreased clinic traffic, staff vacation requests and cross coverage provided between clinics	Provider clinic schedules as required
802	22	The contractor shall recommend improvements to enhance astronaut occupational and preventive health programs based on accepted medical and clinical recommendations.	Bi-annual list of recommended improvements

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
802	23	The contractor shall provide reception services that include but are not limited to: greet patients, identify purpose of visit, verify patient registration information, and ensure that the patient's needs are met in a timely manner.	Daily reception services
802	24	The contractor shall provide clinic patient scheduling services to schedule appointments, maintain the clinic patient schedule, and provide an individual patient schedule for each patient's physical exam.	Daily scheduling services
802	25	The contractor shall update the EMR with results of Aerospace Medical Board (AMB) and Multilateral Space Medical Board (MSMB) decisions. (UNIQUE TO FMP)	EMR updated with AMB/MSMB decisions as required
802	26	The contractor shall provide qualified administrative services to coordinate meetings AMB, Medical Staff, Executive Committee of the Medical Staff (ECOMS), JSC Clinic staff, Pharmacy & Therapeutics (P&T) Committee, and other meetings) as required. (SOME UNIQUE TO FMP)	Administrative services for meetings; as required
802	27	The contractor shall maintain the flight surgeon on-call bag. (UNIQUE TO FMP)	Flight Surgeon on-call bags maintained weekly
802	28	The contractor shall administer JSC Clinic Patient Satisfaction Survey, managing and tracking to resolution all identifiable positive and negative patient feedback.	Monthly patient satisfaction survey analysis and action plan report
802	29	The Contractor shall provide MilSpec prescription safety glasses to astronauts and AOD personnel performing aircraft operations at the maximum frequency of one pair every two years unless the employee's prescription has changed or their current pair has been lost or damaged. (UNIQUE TO FMP)	Up to 240 safety glasses per year
803		**FMC Health Information Services**	
803	1	The contractor shall review EMR Clinical List Updates made by clinical staff to document clinical encounters and annual physical exams for astronauts (active, management and retired) and AOD personnel to ensure that all diagnoses and procedures are properly and accurately coded in the EMR.	Monthly EMR Clinical List Updates reviewed and accurately coded

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
803	2	The contractor shall provide medical records management before, during and after FMC appointments for all clinic patients	Daily medical records management for all appointments
803	3	The contractor shall register and schedule astronaut annual physicals and all job related physicals required by Federal, NASA and JSC policies	As required scheduling services provided
803	4	The contractor shall complete qualification rosters, update databases and reports for distribution as required by NASA TM	Reports generated or data entered to databases; as required
803	5	The contractor shall ensure accurate and timely receipt of reports and images from outside consultants and diagnostic centers	Coordinate receipt of reports and images from external sites; as required
803	6	The contractor shall prepare patient charts and required certification and physical exam forms	Up to 350 patient charts and associated forms prepared per year
803	7	The contractor shall distribute medical reports to clinic physicians as needed.	Up to 350 medical reports distributed to FMC physicians per year
803	8	The contractor shall generate reports from the EMR and paper medical records	Monthly reports generated for FMC Director
803	10	The contractor shall assist clinic personnel in completing all elements of aeromedical certification to fulfill the requirements of the FAA, military services and international partner medical departments.	Provide assistance with the completion of all required certifications; Up to 100 annually
803	11	The contractor shall complete necessary paperwork on FAA physicals to ensure proper FAA certifications.	Completion of forms on up to 5 FAA physical exams per week
803	12	The contractor shall assist with safeguarding hardcopy medical records and other medically related documents during contingency operations such as hurricanes or aircraft and spacecraft accidents (these activities may occur after normal duty hours)	Records safeguarded in a contingency; Per contingency and up to 5 per year
803	13	The contractor shall provide medical records management during Soyuz launches and landings	Per flight schedule provide medical records management during Soyuz launches and landings
803	14	The contractor shall transcribe physician's examination notes for inclusion into the EMR.	Transcribe up to 10 physical examinations into the EMR per week
803	15	The contractor shall perform records retention schedule activities as required by Federal Records Retention Schedule and NASA Policies and Procedures.	Records scanned and/or archived according as per applicable policies

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
803	16	The contractor shall import internal and external medical images into the Picture Archiving Communication System (PACS), to support patient care needs.	Weekly importing of internal and external medical images into the PACS system
803	17	The contractor shall incorporate changes provided from termination, new hire, and Flight Crew Operations Directorate (FCOD) lists into reports of patients eligible for services in the FMC.	Monthly update of the Master Patient Index
804		**Medical Imaging Operations**	
804	1	The contractor shall assist the Radiation Health Office in accurately determining exposure to radiation from internal and external medical sources.	Provide monthly exposure data from internal imaging studies reported, reports, images and/or exposure data requested from external medical offices.
804	2	The contractor shall perform radiologic examinations requested by the providers in the JSC Clinic.	Up to 100 digital images submitted into PACS per month
804	3	The contractor shall schedule and coordinate imaging examinations such as Magnetic Resonance Imaging (MRI), Computed Tomography (CT), Dual-energy X-ray Absorptiometry (DXA), and echocardiograms as requested by JSC Clinic providers performed at remote locations	Schedule and coordinate up to 100 external imaging appointments per month
804	4	The contractor shall provide quality assurance reviews of the Picture Archiving and Communication System (PACS) which supports the capture, archival storage, access, and integration of all NASA diagnostic imaging data products (for example but not limited to: ECG, Cardiovascular US, and Radiology).	Bi-Monthly report on PACS activities

Subtask 8.2 Occupational Medicine Clinic Operations

This subtask services will be provided consistent with a JSC Occupational Medicine Clinic load of ~10,000 active patients. The schedule for completion of deliverables is based on this level of activity.

The Occupational Medicine Clinic provides mission and technical support for the JSC and WSTF Occupational Medicine Program to include physical exams, acute care, preventive medicine, administrative services, medical record management, mission support, outside consultant coordination, and hazardous duty certification.

The Occupational Medicine Clinic personnel will perform operations in accordance with all applicable Federal, agency, state, and local regulations and standards including JSC 1700.1 and all NASA OCHMO

applicable NASA Procedural Documents (NPD), NASA Procedural Requirements (NPR), procedures and guidelines. The purpose of the programs are is to monitor the general health and wellbeing of the workforce, to ensure personnel are fit and able to perform assigned duties, and assist in employee health awareness and improvement potential.

The program will be either The Joint Commission (TJC) or Accreditation Association for Ambulatory Health Care (AAAHC) or similar compliant however, certification is not required.

All personnel assigned and utilized for performance of this contract will possess all licenses, training, registrations, certifications, and certificates required by NASA Headquarters and JSC, as well as Federal, State, and local governments.

The expected skills and training for staffing the Occupation Medicine Clinic are:

•Clinical personnel are current in Healthcare Provider Basic Life Support (BLS) and maintain currency.

•Clinical personnel are current in Advanced Cardiac Life Support (ACLS) and maintain currency.

•Nurses assigned to the JSC clinic are registered nurses (RN) or licensed vocational nurses (LVN) with current licenses to practice in the state of Texas.

The Occupational Medicine Clinic staff must ensure the protection of personnel, property, equipment, and the environment in all contractor products and activities performed in support of institutional and space flight program objectives. The Contractor will develop and implement a safety and health program in accordance with a contractor developed and NASA-approved safety and health plan. This will ensure compliance with pertinent NASA policies and requirements and Federal, State, and local regulations for safety, health, environmental protection, and fire protection.

As applicable, the Occupational Medicine Clinic will implement system safety engineering tasks for flight and institutional program activities and products in accordance with the schedule and applicable flight and institutional requirements in the contractor developed and NASA approved system safety program plans.

The Contractor will conduct risk analyses of all activities and products. The contractor will then develop and implement risk management techniques to eliminate or control these risks.

The Contractor will be expected to provide administrative and technical support to periodic internal and external program audits including those by OSHA VPP, NASA Headquarters (HQ) Office of the Chief Health and Medical Officer (OCHMO), NASA HQ Safety or Environmental Functional Reviews, and other outside agencies. The Contractor will also prepare audit reports and follow up reports to respond to any audit findings.

As part of the Occupational Medicine Program, the Contractor will properly dispose of all biohazardous wastes generated across site, and will sign all Environmental Protection Agency (EPA), Texas Commission on Environmental Quality (TCEQ), and Texas Department of State Health Services (TDSHS) waste manifests (on behalf of JSC).

The Contractor will manage the JSC Automated External Defibrillation (AED) Program and ensure all AED's at JSC, WSTF, Russia, and Ellington Field are properly maintained. The contractor will conduct Health Care Provider and Heart Saver CPR/Automated External Defibrillation as well as Astronaut Corp First Aid training.

OCCUPATIONAL CLINICAL SERVICES

All Occupational Medicine Clinic personnel will perform operations in accordance with all applicable Federal, agency, state, and local regulations and standards including JSC 1700.1 and all NASA OCHMO applicable NASA Procedural Documents (NPD), NASA Procedural Requirements (NPR), procedures and guidelines.

First aid treatment and emergency care will be provided to any civil servant, contractor or official visitor who become ill or are injured whether onsite at JSC, WSTF, SCTF, or while conducting NASA operations at Ellington Field or as directed by the TM for other locations in the Clear Lake area. Such capability will be available during duty hours and at additional times as requested by the TM. The Occupational Medicine Clinic will make a reasonable attempt to treat minor injury treatment; however, is at the discretion of the attending provider, who may request transport of any patient to another health care facility as deemed appropriate.

OCCUPATIONAL HEALTH INFORMATION SERVICES

The contractor will support orders entry of mission-related medical testing. Current practice management and clinical activities will be evaluated to identify areas with potential process improvement and recommendations for future process improvement projects will be presented to NASA management for consideration.

The contractor will organize and maintain paper and electronic medical records, distribute medical reports to providers, implement and maintain tracking processes for routine and diagnostic medical tests, generate reports from the medical records, incorporate external medical reports into patient charts, perform data migration activities, and participate in process improvement and workflow engineering activities.

The Contractor will plan, implement, and coordinate development of the EMR while discouraging dependence on paper medical records for patient care with the goal of eliminating paper through retention obsolescence of records.

The contractor will be compliant with the standards of the Privacy Act of 1974 as amended, and the Health Insurance Portability and Accountability Act (HIPAA). The contractor will develop and implement processes to ensure compliance with these acts.

AMBULANCE SERVICES

The Occupational Medicine Program maintains an ambulance operations program to respond to emergency incidents and to render emergency medical care and transportation to the sick and injured. Ambulances will respond onsite at JSC, within the NASA operations area of Ellington Field, and other locations in the Clear Lake area as defined by the TM.

The contractor shall provide ambulance operations to respond to emergency incidents at JSC, Ellington Field, and other locations between 7:30 AM and 4:30 PM as well as for special events; this includes two ambulances at JSC and one ambulance at Ellington Field. The ambulance service shall be staffed with appropriately certified personnel. Ambulances shall be maintained by the contractor to Department of Transportation (DOT) standards and shall be compliant with the Texas Health and Safety Code Section 773.044 and 25 Tex. Admin. Code §157.11, Mobile Intensive Care Unit (MICU) Provider Qualifications. Ambulances shall be equipped to provide care consistent with Advanced Cardiac Life Support (ACLS) standards and treatment of life threatening injuries.

Transportation may be to an appropriate emergency medical care facility in the Clear Lake area, Houston, or Galveston. At the discretion of an Occupational Medicine Clinic (OMC) provider and the paramedic, minor incidents may be transported to the JSC Clinic.

When in service the ambulance(s) stationed at:

JSC will be the primary emergency medical response onsite at JSC;

Ellington Field will be the primary emergency response for Ellington Field.

Ambulance personnel will be available to operate and provide support for crew activities and special events at the direction of the TM. When in service, the JSC and Ellington Field ambulances will act as back up for any onsite mass-casualty medical emergency where incident command has been transferred to the Houston Fire Department.

The Ambulance Services staff will support all health aspects of the JSC Center Operations Directorate (COD) managed Emergency Preparedness and Emergency Response Team (ERT). Health aspects include ambulance and emergency medical support, and the hurricane rideout team as directed by the TM. Activities to be supported include planning, drills, responses and response critique activities. The Contractor will comply with JPR 1040.4, the JSC Emergency Preparedness Manual and all relevant hazard specific appendices and functional annexes.

JSC Exploration Wellness

The contractor will provide education and informational presentations to the various organizations on site and to the site in general.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
8.2		**Occupational Medicine Clinic Operations**	
805		**OMC Administration**	
805	1	The Contractor shall ensure that all personnel assigned and utilized for performance of this contract possess all licenses, training, registrations, certifications, and certificates required by NASA Headquarters and JSC, as well as Federal, State, and local governments.	Monthly status report

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
805	2	The contractor shall manage and oversee the credentials of all physicians providing medical care in the JSC Clinic. This credentials management process will include primary source verification.	Monthly credentials report
805	3	The Contractor shall identify and document all certifications, licenses, registrations, and training requirements for each staff position.	Quarterly status report
805	4	The contractor shall maintain Occupational Health Clinic web content associated with subtask requirements	Web content reviewed and updated monthly
805	5	The contractor shall assist in scheduling of required exams and ancillary testing with other clinics, outside consultants, and diagnostic centers.	As needed scheduling of exams and external consultations
805	6	The contractor shall assist in creating the provider clinic schedules.	Clinic Provider schedules; as needed
805	7	The contractor shall maintain and update the JSC Clinic Personnel Phone List/Database and verify accuracy.	Bi-monthly update and distributed list to clinic staff
805	8	The contractor shall supply current medical reference materials for the JSC Clinic.	Annual updated medical reference materials paper and/or electronic subscription services available in the JSC Clinic
805	9	The contractor shall assist with revisions to the JSC Clinic Policies and Procedures materials and documentation for all clinic activities.	Quarterly draft inputs to NASA TM.
805	10	The contractor shall contact, maintain and update a current list of medical consultants.	List of consultants distributed bi-annually to clinical staff.
805	11	The contractor shall assist clinic process improvement efforts, including quality assurance activities, following Joint Commission guidelines. This includes assistance with policy revision, documentation, meeting coordination, project administrative services, and other requirements as needed.	Clinic process improvement efforts provided in monthly status reports
805	12	The contractor shall provide customized data reports to be used in the reporting of metrics.	Monthly metrics chart
805	13	The contractor shall provide all necessary clinical supplies to support the operation of all functional areas of the occupational clinic.	Active inventory management as required

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
805	14	The contractor shall provide prescription safety glasses to onsite (civil servant and contractor) personnel working in eye hazardous areas at the maximum frequency of one pair every two years unless the employee's prescription has changed or their current pair has been lost or damaged.	Up to 240 safety glasses per FY
805	15	The contractor shall conduct patient satisfaction surveys to assure quality objectives are achieved.	Patient satisfaction surveys per exam; Monthly report on feedback
805	16	The contractor shall schedule, organize, and coordinate the agenda and the minutes for the monthly JSC Clinic Staff Meeting.	Monthly JSC OMC Meeting agenda and minutes
805	17	The contractor shall coordinate and staff the JSC Clinic Emergency Management Plan when enacted.	Annual JSC Clinic Emergency Management Plan update Medical Staffing as required
805	18	The contractor shall provide clinic management for Occupational Health Clinic activities	Daily activities coordinated
805	19	The contractor shall support external audits and inspections in the JSC Clinic as directed by the customer.	Up to 2 audit reports per FY
805	20	The contractor shall provide reception services (greet patients, identify purpose of visit, verify patient registration information, and ensure that the patient's needs are met in a timely manner).	Daily reception services
805	21	The contractor shall provide medical monitor for human research testing and physician oversight and participation in Test Readiness Reviews, Operational Readiness Reviews, and mishap boards.	Support as needed; Monthly activity report of reviews, inspections, tests and boards supported
806		**OCCUPATIONAL CLINICAL SERVICES**	
806	1	The contractor shall support the Hearing Conservation program: patients identified at annual physical exam with special testing needs or who require follow-up, data entry of audiometric testing, data review, tracking and follow-up of abnormal tests, coordinate and follow-up consultations.	Monthly activity report; coordination and scheduling of additional testing as required
806	2	The contractor shall provide Preventive Health examinations to civil servants in accordance with U.S. Preventive Services Task Force, and current preventive health guidelines.	Up to 150 physical exam records entered into the EMR

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
806	3	The contractor shall report both confirmed and suspected occupational injuries and illnesses to S&MA and Industrial Hygiene for hazard control and investigation within four hours of clinic presentation, but no later than close of business on the date of injury.	Up to 20 occupational injury reports per month
806	4	The contractor shall provide physical examinations (initial/pre-placement, periodic, termination) for civil servants and qualified contractor personnel as required by OSHA regulations or as found in the NASA Occupational Health Program Requirements, NPR 1800.1, the JSC Safety and Health Handbook, JPR 1700.1, or other applicable adopted standard.	Up to 150 physical exam records entered into the EMR
806	5	The contractor shall perform follow-up for all civil servant and contractor injuries and illnesses, including report of clinically abnormal results to patients, arranging for outside medical testing, and assisting employee management in return to work issues.	Up to 1000 Clinic encounters/visits per month
806	6	The contractor shall initiate and process civil servant Workers' Compensation claims and coordinate the handling and reporting of these claims with the DOL Office of Worker's Compensation Program (29 Code of Federal Regulations (CFR) 1904) and NASA Shared Services Center as appropriate	Up to 5 Workers' Compensation Claims per month
806	7	The contractor shall provide to JSC civil service personnel, assigned Armed Forces personnel, and contractor employees, if the requirement is based upon a JSC assignment, all immunizations required by local, State, Federal, or International laws or regulations.	Up to 550 Immunizations administered per month
806	8	The contractor shall operate the annual JSC Flu Shot program, including purchasing, offering and providing flu shots to JSC civil servants and on-site contractors.	Annual Flu Shot clinics
806	9	The contractor shall demonstrate the competence of non-physicians required to perform advanced life support tasks: this includes, but is not limited to, intravenous fluid administration, endotracheal intubation, static and dynamic electrocardiography (ECG) recognition, and medication administration.	Annual staff competencies list

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
806	10	The contractor shall provide technical support to maintain the JSC AED program, replace equipment as required, and conduct semi-annual audits.	Annual Equipment Order/Audit Form
806	11	The contractor shall conduct AED/Cardio-Pulmonary Resuscitation (CPR) training for providers and laypersons.	2 training classes held per month and submitted training record
806	12	The contractor shall review EMR Clinical List Updates made by clinical staff to document clinical encounters and annual physical exams for civil servant and contractor personnel to ensure that all diagnoses and procedures are properly and accurately coded in the EMR.	Monthly accuracy review and corrections of EMR Clinical List Updates
807		**Occupational Health Information Services**	
807	1	The contractor shall provide medical records management before, during and following OMC appointments for all clinic patients.	Daily medical records management performed for all appointments
807	2	The contractor shall register and schedule Civil Servant annual physicals and all job related physicals required by Federal, NASA and JSC policies.	Scheduling services as required
807	3	The contractor shall determine tests required for the individual patient's physical examination and ensure these reports are incorporated into the EMR.	Per exam tests identified per clinic protocol and tracking sheet provided to clinic personnel
807	4	The contractor shall obtain, collate, and coordinate data entry of medical information as required for initial and continued certification of clinic patients for all applicable job duties including international travel.	As required complete qualification rosters, update databases and reports for distribution.
807	5	The contractor shall perform data migration activities such as scanning and attaching historical consultant reports for OMC patients in the EMR	Up to 150 historical external consultant reports scanned for OMC patients
807	6	The contractor shall assist with safeguarding hardcopy medical records and other medically related documents during contingency operations such as hurricanes or aircraft or spacecraft accidents (these activities may occur after normal duty hours).	Records safeguarded in a contingency; Per contingency and up to 5 per year
807	7	The contractor shall transcribe physician's examination notes.	Transcribe up to 10 physical examinations into the EMR per week
807	8	The contractor shall perform records retention activities according to the schedule required by Federal Records Retention Schedule and NASA Policies and Procedures.	Records scanned and/or archived according to applicable policies

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
807	9	The contractor shall, upon receipt of notification from Workforce Transformation Tracking System (WTTS), process paper and electronic charts in accordance with the request.	Records scanned, archived, or sent to next duty station according to applicable policies
807	10	The contractor shall work with administrative and clinical staff to assess, plan, and design new data capture workflows and customization of the EMR and other tools to the clinic needs.	Annual assessment of Custom forms, tools and workflows
807	11	The contractor shall support the transition from use of paper charts to use of electronic charts with the goal of eliminating paper records through retention redundancy	Medical records management conducted within the EMR
807	12	The contractor shall import internal and external medical images into the Picture Archiving Communication System (PACS), to support patient care needs.	Weekly importing of internal and external medical images into the PACS system
808		**Ambulance Services**	
808	1	The contractor shall operate the government furnished ambulances at JSC and Ellington Field.	Daily services; Monthly status report
808	2	The contractor shall provide personnel certified by the Texas Department of State Health Services to operate and maintain all ambulances.	Monthly credential status report
808	3	The contractor shall ensure that each response ready or in-service ambulance is staffed at the Advanced Cardiac Life Support with Mobile Intensive Care Unit level in accordance with Texas Administrative Code RULE §157.11.	Monthly status report
808	4	The contractor shall ensure the requirements to maintain a TDSHS Emergency Medical Services Provider license are met but are not required to obtain the license.	Monthly status report
808	5	The contractor shall ensure that NASA provided EMS protocols are followed.	Following each ambulance run an ambulance run sheet submitted to OMC
808	6	The contractor shall respond to all ambulance/medical emergencies and report patient contact within 6 minutes.	Up to 20 ambulance runs per month with EMR documentation
808	7	The contractor shall provide ambulance/medical emergency services for the special events such as the annual Ballunar Festival and Wings Over Houston events, as well as after hours and weekend services as determined by the TM	Specified special events; up to 3 per FYand weekends; EMR Documentation
809		**JSC Exploration Wellness**	

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
809	1	The contractor shall provide education and informational presentations to the various organizations on site and to the site in general.	Up to 10 presentations per FY

Subtask 8.3: Clinical Laboratory Operations

The JSC Clinical Laboratory provides phlebotomy services, laboratory analysis, and result reporting services for all clinical laboratory clients, including the JSC Clinic, mission medical operations, astronaut selection, Test Subject Screening (TSS), and authorized investigations. Typically, the laboratory performs approximately 20,000 tests on approximately 500 samples per month. The schedule for completion of deliverables is based on this level of activity.

After collection, the laboratory will process the samples, including processing of all tests sent to a reference laboratory, and analyze the samples. Results are reported using the Laboratory Information System (LIS) and the LIS-Electronic Medical Record (EMR) bi-directional interface.

In order to ensure quality, the laboratory will maintain accreditation by the College of American Pathologists (CAP). In keeping with the regulations of CAP, all analyzers and other equipment will be calibrated and maintained according to manufacturers' recommendations, quality assurance monitors will be evaluated at least quarterly, and quality control materials will be run with all samples and evaluated. Proficiency testing will be performed for all analytes for which testing is performed at JSC. Policies and procedures for all processes in the JSC Clinical Laboratory will be produced and maintained according to CAP and ISO standards.

The Clinical Laboratory will provide pre- and post-flight support to flight crews at various landing sites as requested, including phlebotomy, specimen processing, specimen analysis, and result reporting following standard CAP laboratory procedures.

The Clinical Laboratory is responsible for the collection, processing, storage and maintenance of a NASA Biological Specimen Repository of samples for use in future research projects.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
8.3		**Clinical Laboratory Operations**	
810		**Administration and Laboratory Operations**	
810	1	The contractor shall provide schedules and reports summarizing the laboratory activities, performance metrics summarizing patient encounters and laboratory workload, accomplishments, and meetings.	Monthly metrics, special reports as needed

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
810	2	The contractor shall provide services to prepare briefings for flight-specific program meetings.	Up to 10 Excel spreadsheets and PowerPoint presentations quarterly
810	3	The contractor shall conform to all CAP standards while performing the tasks under this subtask. This includes providing American Society of Clinical Pathologists (ASCP) (or similar) certified laboratory personnel with available 24-hour coverage.	Daily laboratory services
810	4	The contractor shall maintain an inventory of property, supplies, and chemicals.	Annual update of property, inventory, and maintenance lists
810	5	The contractor shall perform and evaluate quality control on all analyses using CAP, the Clinical Laboratory's Laboratory Information System (LIS), and other approved methodologies.	Quality Control (QC) Records CAP surveys and other quality indicators run Daily and as required
810	6	The contractor shall prepare reports using the LIS.	Monthly database reports from LIS
810	7	The contractor shall supply current medical reference materials for the clinical laboratory.	Annually updated medical reference materials available in laboratory.
810	8	The contractor shall maintain Clinical Laboratory web content associated with subtask requirements	Monthly review of Clin Lab SharePoint and Web site; update as needed
810	9	The contractor shall periodically evaluate current market instrumentation/testing for possible applications in the laboratory.	Annual report from vendors and market survey; periodic reports from literature review
810	10	The contractor shall produce, maintain and review policies and procedures for all processes in the JSC Clinical Laboratory.	Annual review of policy and procedure manuals; update as required
810	11	The contractor shall provide all required PPE.	PPE as required
810	12	The contractor shall participate in Proficiency Testing on all analytes for which testing is performed at JSC.	Proficiency Testing Evaluations from the Proficiency Testing provider; 2-3 times per year, as required
811		**JSC Clinic Laboratory Support**	

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
811	1	The contractor shall provide certified laboratory services to perform analysis on specimens from the JSC Clinic. This includes all patients from the FMC as well as all ISS laboratory services.	Daily laboratory services and as per ISS launch and landing schedule for crew and cargo vehicles
811	2	The contractor shall provide specimen collection services including phlebotomy for the JSC Clinic using approved practices and safety devices. This includes ISS crew support as well as selection of new astronauts.	Weekly and per ISS flight schedule: LIS Database updates; trip reports
811	3	The contractor shall process all specimens for analysis including those performed in-house and those forwarded to a reference laboratory and periodically review test requisitions from clients to ensure test completion	Daily LIS Database
811	4	The contractor shall perform all routine and urgent (STAT) test analysis using standard laboratory procedures and within turn-around-times of acceptable laboratory practices.	Daily LIS Database; Quarterly quality assurance meeting minutes
811	5	The contractor shall report results on all analysis performed in-house or received from reference laboratories.	Daily Electronic LIS Reports & EMR reports; Hardcopy results are printed and distributed as requested
811	6	The contractor shall coordinate with the research community to ensure that specimens for IRB approved investigations are collected, processed, delivered, and/or analyzed correctly	Experimental Support Requests Per ISS flight schedule; LIS Data Reports as required
811	7	Prior to space flight launches and landings, the contractor shall prepare and ship supplies and coordinate all logistical activities including shipment of specimens to the designated sites as requested	Proformas; Ground Support Requirements Documents Per ISS flight schedule
811	8	The contractor shall make arrangements for the delivery of specimens from the JSC Clinic to the laboratory	Daily LIS Report
812		**Biological Specimen Repository**	
812	1	The contractor shall provide ground support for repository of inflight tissue/sample collection, including implementation of specimen collection protocol, sample release protocol, and procedures for ground-based repository, and ongoing sample processing.	Monthly inventory of samples into STIS
812	2	The contractor shall monitor storage of specimens both on and offsite, and transfer specimens to a secure offsite facility as necessary.	Transfer of specimens to a secure offsite facility as necessary. Maintain inventory of specimens in storage facilities; update as needed

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
812	3	The contractor shall maintain and update an inventory of all archival biological specimens using a specimen tracking and inventory system that is searchable and secure and assist in the evaluation and establishment of new specimen archives if requested.	Weekly update of specimen tracking and inventory system, enter new samples into database, update information, maintain software

Subtask 8.4: Pharmacy Operations

The contractor will manage the JSC Pharmacy, which serves the JSC Clinic patient populations. Pharmacy personnel will provide physician and patient education, track and maintain inventory, develop and maintain pharmacy policies and procedures, and provide pharmaceutical services to the Space Medicine Program. The contractor will staff the JSC Pharmacy during normal clinic operating hours, 0900 to 1200 and 1300 to 1700 during normal duty days, and after hours as needed for mission requirements.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List
8.4		**Pharmacy Operations**	
813		**JSC Pharmacy Operations**	
813	2	The contractor shall manage the JSC pharmacy operation in compliance with applicable federal and state regulations as directed by the NASA TM.	JSC Pharmacy operations, presentations and email notifications of procedural changes to medical staff; Monthly
813	3	The contractor shall develop and maintain policies and procedures, documentation for the JSC Pharmacy, verify accuracy and currency annually and provide a roster of current policies and procedures to NASA TM.	Policies and procedures documentation update as needed; P&T policy book reviewed bi-annually
813	4	The contractor shall provide pharmaceutical medication management services as approved by the NASA TM.	Medication management as needed
813	5	The contractor shall participate in JSC Clinic departmental and committee meetings such as P&T, , Continuous Quality Improvement, and Infection Control.	Monthly meeting support report
813	6	The contractor shall assist clinic personnel in the stocking of treatment rooms, medic bags and astronaut quarantine facility.	Monthly review of clinic and quarantine inventory
813	7	The contractor shall provide pharmaceutical support for the drug tolerance testing program.	Medication per prescription and documentation into EMR as required

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List
813	8	The contractor shall provide pharmaceuticals to the Star City and Moscow Clinics.	Updated inventory up to 8 times per year at Star City and Moscow Clinics
813	9	The contractor shall manage pharmaceutical stocks for crash carts.	Management of crash carts, and medic bags; as required
813	10	The contractor shall coordinate medication management performance improvement projects as decided upon by the P&T Committee.	Up to 2 Med management performance improvement projects per P&T minutes
813	11	The contractor shall conduct medication inspections of stocked areas per P&T Committee.	Med area inspections conducted per P&T
813	12	The contractor shall coordinate the annual pharmacy formulary review as directed by the P&T Committee.	Annual pharmacy formulary review conducted
813	13	The contractor shall perform Drug Utilization Evaluations (DUE) and report results to NASA TM quarterly or as directed by P&T Committee.	DUEs performed as directed by P&T and reported to NASA TM quarterly
813	14	The contractor shall provide pharmaceutical services for packing medical kits for the ISS Program to include personal, station kits, deployment and R+0.	Pharmacy services for ISS crew members per ISS flight schedule
813	15	The contractor shall provide drug information as requested by the provider.	Drug information provided Per Request
813	16	The contractor shall participate in Health Maintenance System (HMS) meetings (ISS) as pharmacy representative.	Meeting participation / meeting minutes as needed
813	17	The contractor shall maintain medical and administrative confidentiality of pharmacy operations per Privacy Act of 1974 as Amended.	Medical and administrative confidentiality maintained; training scheduled and documented annually
813	18	The contractor shall update and maintain pharmacy web content associated with subtask requirements.	Accuracy verified of web content and updated quarterly

Subtask 8.5 Test Subject Screening

Test Subject Screening (TSS) will recruit and maintain a pool of test subjects that have passed a test subject physical. The TSS will identify candidate subjects that meet approved experiment criteria, and provide these subjects for participation in assigned intra- and extramural investigations. These investigations include both ground-based and parabolic flights. Flight-type physicals and required medical screenings to qualify potential test subjects for participation in NASA-approved ground based and parabolic flight experiments will be performed by Occupational Medicine and Occupational Health personnel in the JSC Clinic.

The TSS will coordinate test subject availability for ground-based studies conducted at JSC and for assigned flights originating at Ellington Field. The TSS may also provide such subject coordination for approved and assigned studies at other NASA Centers or partnering institutions. The TSS will coordinate and provide medical monitoring for assigned ground studies excluding hypobaric/hyperbaric chamber studies, Neutral Buoyancy Laboratory (NBL) activities and the Crew and Thermal System chamber flights. The TSS will maintain, update, and keep secure subject and/or subject candidate medical records for tests conducted at JSC.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List
8.5		**Human Test Subject Facility**	
814		**Test Subject Facility Health Screening**	
814	1	The contractor shall provide Test Subject hours (1200 – 4200 hrs/fiscal year).	Up to 1200 - 4200 hrs/fiscal year
814	2	The contractor shall review/update and secure medical records on all screened participants.	Monthly hard copy and electronic medical record maintenance
814	3	The contractor shall screen short-term subjects to meet experiment criteria for requesting investigator.	Identifying subjects cleared for specific studies; perform up to 20 flight physicals/month
814	4	The contractor shall coordinate advertising, consistent with investigator's advertising budget.	Arrangement of advertisement, up to 12 times/fiscal year
814	5	The contractor shall process short-term and long-term study subject timesheets.	Weekly timesheets submitted to vendor for payment
814	6	The contractor shall coordinate and conduct medical monitoring for short-term and long-term studies and provide medical support for Test Readiness Reviews (TRR).	Weekly schedule and conduct physician coverage for short-term studies
814	7	The contractor shall report subject related metrics defined by projects.	Monthly metrics report

Subtask 8.6 Medical Bill Payments

The contractor will be responsible for payment of all medical bills incurred by the active astronaut population and Aircraft Operations Directorate (AOD) personnel as directed by NASA.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
8.6		**Medical Bill Payments**	
815		**Astronaut and AOD Medical Bill Payments**	

815	1	The contractor shall be responsible for payment of all medical bills incurred by the active astronaut population. (UNIQUE TO FMP)	As scheduled, up to 100 per month; Medical billing statements submitted by off-site providers.
815	2	The contractor shall be responsible for payment of all occupationally-related medical bills incurred by the AOD personnel. (UNIQUE TO FMP)	As specifically directed by NASA TM; Medical billing statements submitted by off-site providers.

Subtask 8.7 Astronaut Strength Conditioning and Reconditioning

The contractor will design personal fitness programs as prescribed by the Flight Medicine Clinic for any astronaut flying to the International Space Station. The contractor will work individually with up to 18 mission-assigned astronauts to implement exercise schemes that maximize mission success and help mitigate the physiologic effects of microgravity. These schemes will include pre-flight, in-flight and post-flight phases.

The contractor will provide musculoskeletal injury evaluation, rehabilitation, and Athletic Training services for NASA or international astronauts as requested by Space and Clinical Operations. The contractor will also coordinate injury and post-surgical consultations and provide rehabilitation when necessary.

Contractor responsibilities will include performing crew physical fitness evaluations, pre-flight exercise consultations, daily in-flight exercise support, evaluation of ISS in-flight fitness levels, post-flight reconditioning, and injury evaluation and rehabilitation. Pre-flight exercise training continues throughout the quarantine period. ISS post-flight reconditioning begins on landing day and continues daily for 45 days or as requested by Space and Clinical Operations. The contractor will be ready to support post-flight reconditioning in Russia in the event of an off-nominal Soyuz landing.

The contractor will provide in-flight exercise support and evaluation of astronaut in-flight physical fitness.

The contractor will have a detailed knowledge of the performance capabilities of the ISS in-flight exercise equipment, including the, Cycle Ergometer with Vibration Isolation and Stabilization (CEVIS), Resistive Exercise Device (RED), Advanced Resistive Exercise Device (ARED), and Second Generation Treadmill (T2).

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
8.7		**Astronaut Strength, Conditioning, and Reconditioning (ASCR)**	
816		**ASCR Support**	

816	1	The contractor shall conduct an annual fitness assessment on active members of the Astronaut Corps.	Up to 50 fitness assessment reports per FY
816	2	The contractor shall provide injury evaluation and reconditioning for all NASA or international astronauts as required by Space and Clinical Operations Division	Up to 16 evaluations and/or therapy sessions per week; Report therapy and evaluation in EMR
816	3	The contractor shall generate ASCR web and SharePoint content associated with subtask requirements.	Annual web and SharePoint updates
816	4	The contractor shall plan, develop, and implement an exercise program in conjunction with the crew assigned flight surgeon for each NASA astronaut assigned to an ISS Expedition mission. This program will begin upon assignment.	Exercise plan and supported sessions with crew members per flight schedule
816	5	The contractor shall provide in-flight exercise support for NASA astronauts.	As needed meeting support with flight surgeons and exercise sessions with crew members
816	6	The contractor shall provide post-flight reconditioning for NASA astronauts.	Exercise sessions with crew members per increment-specific schedule
816	7	The contractor shall provide expertise for requirements development, design and implementation of in-flight exercise hardware to agency and program/project meetings.	Meeting attendance and participation as needed
816	8	The contractor shall conduct appropriate Medical Assessment Tests for NASA astronauts.	Per launch schedule fitness assessment report in EMR.
816	9	The contractor shall support post-flight reconditioning in Russia in the event of an off-nominal Soyuz landing.	Per landing schedule exercise sessions with crew members
816	10	The contractor shall support post-flight reconditioning in Star City when Russian debriefs are scheduled during the 45 day reconditioning period.	Per landing schedule exercise sessions with crew members
816	11	The contractor shall train NASA crew members on the use of the current ISS exercise devices.	Per landing schedule exercise sessions with crew members
816	12	The contractor shall train Russian crew members on the use of ARED.	Per landing schedule exercise sessions with crew members
816	13	The contractor shall maintain the lap pool and Hydroworx pools.	Weekly purchase orders maintenance logs

816	14	The contractor shall update Medical Requirement Integration Document (MRID) requirements as directed by Space and Clinical Operations.	Provide annual draft input
816	15	The contractor shall review and provide updates to JSC document 27050 – Postflight Rehabilitation Plan.	Annual review of JSC 27050
816	16	The contractor shall deliver Medical Record reports to the Mission Medical Repository SharePoint site as specified in the Data Submission Agreements.	Up to 10 MR Reports per month
816	17	The contractor shall perform the Post-NBL run survey/evaluation.	Completed survey per NBL schedule, up to 10 per week
816	18	The contractor shall compile a quarterly report describing crew member workouts and compliance with injury prevention protocols.	Quarterly Compliance and Prevention report
816	19	In the event of crew injury, the contractor shall be available to provide reconditioning and treatment in Star City during preparations for Soyuz launch.	Rehabilitation or therapy sessions with crew members; as needed
816	20	The contractor shall carry medical malpractice insurance for athletic training staff involved in direct patient care.	Purchase orders for malpractice insurance; as required

Subtask 8.8 Neutral Buoyancy Lab Human Test Support

This subtask defines the technical support for activities in altered pressure environments such as Neutral Buoyancy Lab (NBL), Crew and Thermal Systems Division (CTSD), and Ellington Field flight operations and includes physical exams, emergency treatment of ill and injured subjects, and hyperbaric and hypobaric chamber support. Additionally, it will include medical monitoring during CTSD vacuum chamber and NBL Suited Tests, Dive Operations, and SCUBA events to ensure the safety of all personnel, and collect physiological data during manned testing. During all CTSD testing and NBL Suited Tests, Dive Operations, and SCUBA events support will ensure the hyperbaric chambers at JSC and the Sonny Carter Training Facility (SCTF) are properly staffed, this will also include keeping these chambers properly maintained.

The NBL Human Test support also includes conducting the NASA Physiological Training Program, and assisting in research projects which utilize the hypobaric and/or hyperbaric chambers.

The NBL Human Test support can provide appropriate level of cost-based support to commercialization, medical research, and other special activities requiring the hyperbaric and hypobaric chambers and NBL Human Test Support Group expertise given the appropriate government or space act agreements are in place.

Table 1: NBL HTS Support Summary

EVENT	PERSONNEL	FREQUENCY	DURATION
NBL Suited Operations	7 for one test 8 if dual tests: A and B side.	As determined by DX schedule, normally 3 to 4 times per week.	8.5 hours each test
	Test Control Console: A or B		
	Hyperbaric Chamber: Medical Officer (MO), Supervisor, Inside Tender, Crew Chief, Chamber Operator, Timekeeper. MO required within 5 minutes response.		
NBL Dive Operations (Non-suited)	6 for hyperbaric chamber: MO, Supervisor, Inside Tender, Crew Chief, Chamber Operator, Timekeeper. Medical Officer required within 30 minutes response.	As determined by DX schedule	8.5 hours
CTSD	Dry Run - 1 Medical Technician (MT); MO on-call	As determined by CTSD schedule	Typical SSATA chamber run is 9 hours. Other vacuum chamber tests can last up to 13 hours.
	Altitude Run - 6: 1 MT and MO on console		
	Hyperbaric Chamber - MO, Supervisor, Inside Tender, Crew Chief, Chamber Operator, Timekeeper.		
***AED/CPR (Heartsaver/BLS)**	3 – 1 lead instructor, 2 assistants	Monthly and as requested	3.5 hours
***AED Audit**	2	Semi-annual	5 days (40 hours)
***JSC AED Coordinator**	1	Daily	1 hour
***JSC AED Maintenance**	1	Weekly	2 hours

Physiological Training	12 if concurrent with CTSD Altitude Run and NBL Suited Test (9 for hypobaric chamber, 2 CTSD vacuum chamber, 1 NBL console. Requires 13 if dual NBL tests.)	Twice Monthly	**NASA Initial: 8 hours** (6 hrs of classroom academics and 2 hrs for chamber flight) **NASA Refresher: 6 hours** (5 hrs academics and 1 hr for chamber flight) **Astronaut/Aircrew Refresher: 2.5 hours** (1.5 hrs academics and 1 hour chamber flight) **FAA: 8 hours** (6 hrs of classroom academics and 2 hrs for chamber flight)
	11 if concurrent with CTSD only		
	10 if concurrent with NBL Suited Test. 11 if dual NBL tests.		
	9 if no CTSD or NBL Suited Test(s).		
	Hypobaric Chamber Crew: MO, Lecturer, Chamber Operator, Recorder, Lock Operator, Crew Chief, Inside Observer 1, Inside Observer 2, Inside Observer Lock.		
Crash Cart Audit	1	Quarterly	2 hours (3 crash carts: 1 NBL,1 bldg. 7, & 1 bldg. 32)
Pharmaceutical Inventory	1	Monthly	2 hours (NBL, Bldg. 7 & 32, Ellington Field)
Chamber Maintenance	2 (1 to perform work and 1 to conduct Quality Assurance)	2 times weekly	6 hours
Life Support Equipment Inspections	1	Monthly, every 180 days	2 hours monthly, 12 hours every 180 days
Aircraft First Aid Kits	1	Monthly	2 hours
Document Control	1	Monthly	8 hours
Reports:		Weekly, Monthly, Quarterly, Semi-Annual, &	

		Annual	
Monthly Work Achievements		Prior to 10th of each month	
Monthly Safety Report		Prior to 10th of each month	
Monthly Inspections (Office, Laboratory, Vehicle)		1st day of each month	
Customer Satisfaction Surveys		Prior to 10th of each Qtr (Apr, Jul, Oct, Jan)	
Annual Work Achievements		Prior to 10th of January	
AED Annual Activity		Prior to end of August	
Chemical Inventory		Qtr Apr 30, Jul 31, Oct 31, 4th Qtr & Annual Nov 30	
MSDS Database		New or updated products	
Meetings:			
DX Morning TRR	1	Daily	
DX TRR	1	Every Thursday, as required	
SD3 Branch	1	Every other Tuesday	1 hour
CTSD Test Team Briefing, TRR, Emergency Drills	1 each	As required	
JSAT Committee	1	Monthly	1 hour

Contractor ESHEC	1	Monthly	1 hour
EVA-IPT	1	Monthly	1.5 hours
Crash Cart Task Force/AED Committee	1	Quarterly	1 hour

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
8.8		**NBL Human Test Support**	
817		**NBL Human Test Support Group (HTSG)**	
817	1	The Contractor shall ensure all personnel assigned and utilized for performance of this subtask possess all licenses, training, registrations, certifications, and certificates required by NASA Headquarters and JSC, as well as federal, state, and local governments.	Monthly Status Report
817	2	The Contractor will identify and document all certifications, licenses, registrations, and training requirements for each staff position.	Monthly Status Report
817	3	The contractor shall assist in conducting hypobaric chamber pre/post-flight medical examinations on test crew and test personnel per Table 1.	Medical Examination Reports as specified in Table 1
817	4	The contractor shall assist the medical officer in monitoring hazardous tests at CTSD and NBL facilities, and collect physiological data during CTSD manned testing per Table 1.	Provide support to customer per testing schedule as defined in Table 1
817	5	The contractor shall maintain medical supplies and equipment including drug stock and provide upkeep for all treatment rooms/areas.	Monthly Status Report of Inventory
817	6	The contractor shall maintain and update test schedules, notify physician involved for specific tests, and prepare necessary equipment for testing.	Daily medical coverage according to test schedule and communication with physicians.
817	7	The contractor shall maintain the reference library by updating technical manuals, directives.	Monthly review of medical library; update as needed
817	8	The contractor shall maintain a document regarding medical support of the chamber operations and the NBL. This includes standard operating procedures and test plans available in the work area.	Annual review and update of work instruction/test plans
817	9	The contractor shall provide and maintain the aircraft first aid kits for all NASA aircraft stationed at Ellington Field.	Monthly status report on inventory and annual review of checklist
817	10	The contractor shall teach hyperbaric chamber operator courses to selected NBL personnel.	Training class as requested and annual training record

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
817	11	The contractor shall assist human research projects and space station hardware in the hyperbaric/hypobaric chambers.	As required according to study schedule
817	12	The contractor shall conduct classroom instructions of aerospace physiology and related subjects including instruction on use and care of life support equipment such as full pressure suit, aircraft escape systems, parachutes, oxygen equipment, and other related equipment. Serve as an inside observer and conduct lectures and demonstrations during altitude chamber training flights. This is for aircrew, astronauts and other designated personnel as directed.	Annual review and update of lesson plans
817	13	The contractor shall perform field level or preventive maintenance and repair on hypobaric chamber, hyperbaric chamber, oxygen equipment, and other associated equipment including the maintenance of a proper cleanliness standard of all equipment.	Daily field maintenance and documentation in maintenance log
817	14	The contractor shall: • Provide emergency treatment of injured and assist the physician with patient care in accidents occurring during human test activity. • Provide minor treatment for occupational injuries and illnesses for non-test incidents at the SCTF. • Utilize JSC reporting and recording systems for documentation of treatment. • As appropriate, utilize JSC emergency response systems to request additional resources.	Semi-annual training to maintain currency; provide treatment and complete documentation as required
817	15	The contractor shall serve as inside medical team members for the treatment of patients inside the hyperbaric chambers.	Daily service per testing schedule
817	16	The contractor shall operate the hyperbaric treatment chamber and hypobaric training chamber at all crew positions and record pertinent training and medical data.	Daily service per testing schedule and training record documentation
817	17	The contractor shall be required to support human test activities on an irregular or staggered tour of duty basis. Personnel are required to be on-call at various intervals and report to work as required to facilitate the test.	Daily service per testing schedule
817	18	The contractor shall provide emergency medical support and hyperbaric chamber readiness which may be conducted on second shift and weekends.	Daily service per testing schedule

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables and Schedule
817	19	The contractor shall ensure all HTSG personnel involved in Test Support activities are provided with continuing proficiency training to ensure updated skill capabilities and readiness for their assigned duties. EMTs are to maintain Texas Certification.	Training as required and training record updated annually
817	20	The contractor shall maintain the physiological training database of personnel who are qualified to participate in JSC altered pressure environment activities. This includes personnel not stationed at JSC who participate in fractional gravity flights, NBL, and CTSD activities.	Update physiological training database per training schedule
817	21	The contractor shall prepare and present regular medical safety briefings to NBL staff and divers	Up to 6 presentations per FY
817	22	The contractor shall provide pre-flight briefings to CTSD hypobaric chamber subjects and test team members on potential health hazards and symptom recognition.	Daily service per testing schedule
817	23	The contractor shall attend and participate in planning, pretest, and review meetings, drills, safety and team briefings for all CTSD and NBL testing involving humans.	Daily service per testing schedule

Subtask 8.9 White Sands Test Facility Services

WSTF Clinic

The WSTF provides onsite occupational, emergency and preventive medicine services in accordance with all applicable Federal, agency, state, and local regulations and standards including JPR 1700.1 and all applicable NASA Policy Documents (NPD), NASA Procedural Requirements (NPR), and guidelines. The purpose of the programs are to monitor the general health and wellbeing of the WSTF workforce, to ensure personnel are fit and able to perform assigned duties, and assist in employee health awareness and improvement potential. Medical and health services are provided to each WSTF NASA and contractor employee consistent with the potential hazards associated with their individual duties and workplace. Physical examinations are provided in support of occupational health maintenance programs

WSTF Wellness

The Contractor will provide exercise and fitness program prescriptions to members of the White Sands Test Facility (WSTF) Fitness Center. The Contractor will provide facility safety training, including weight safety training, to users of the WSTF. At the direction of the NASA Technical Monitor, the Contractor will support day-to-day operation of the WSTF Fitness Facility. The Contractor will administer a medical screening program to qualify individuals for use of any of the Fitness Center facilities or programs.

WP No.	Rqmts. No.	Requirements/Tasks	Deliverables List
8.9		**WSTF Services**	
818		**WSTF Clinic**	
818	1	The contractor shall operate the WSTF medical clinic to provide first aid, care for occupational injuries or illnesses, treatment for minor illnesses, whether job related or not, and other medical and public health programs	Up to 370 clinic encounters per month; Medical exam records in Electronic Medical Record (EMR)
818	2	The contractor shall perform health screening physical examinations on all employees (civil service and contractor) on an annual basis and consolidate multiple exams (i.e., health screening and respirator exam) wherever possible.	Up to 150 health screening exams per month; Medical exam records in Electronic Medical Record (EMR)
818	3	The contractor shall ensure availability of preventive occupational health measures such as immunizations or injections.	Monthly inventory list
818	4	The contractor shall provide medical surveillance and fitness for duty examinations for personnel directly involved in occupations as defined in JPR 1700.1 or WSTF specific requirements, e.g., odor panel, respiratory protection, asbestos abatement, and heavy equipment operations.	Up to 50 surveillance exams per month; Medical exam records in Electronic Medical Record (EMR)
818	5	The contractor shall perform quarterly medical assessment of the WSTF Occupational Health Program for compliance with New Mexico occupational health requirements, and submit report to JSC OHO, WSTF Management, and the Chief, Safety & Mission Assurance (S&MA)-WSTF.	Quarterly medical assessment report of program
819		**WSTF Wellness**	
819	1	The contractor shall track and maintain records of all required training for personnel	Annual review and update of training records
819	2	The contractor shall track fitness center metrics such as statistics for daily use, group fitness attendance, and education class attendance.	Weekly activity report
819	3	The contractor shall provide exercise and fitness prescriptions to WSTF employees.	Up to 100 exercise prescription per FY
819	4	The contractor shall provide a safety/new member orientation and maintain member records to ensure compliance with NASA specifications.	As needed orientation and safety briefings
819	5	The contractor shall support day to day operations for the WSTF fitness center.	Daily service, maintenance and cleaning
819	6	The contractor shall establish a maintenance contract with a local vendor to provide for upkeep and repair of current equipment.	Annual renewal of equipment maintenance contract

819	7	The contract shall be responsible for the strength, conditioning, and wellness program for the NASA WSTF fire department.	As needed exercise prescriptions; Annual fitness testing and reporting;
819	8	The contractor shall work in cooperation with the WSTF clinic to help/counsel patients/members with specific medical needs that can be addressed by exercise and diet (for example but not limited to: pre-diabetes, hypertension, etc.).	Exercise and nutrition plans as needed
819	9	The contractor shall organize and run employee fitness incentives to promote the fitness center and physical fitness.	Up to 2 events scheduled and coordinated per FY
819	10	The contractor shall provide on-site education and informational presentations at group meetings; all hands; etc.	Up to 5 presentation per FY

ATTACHMENT L–4: GOVERNMENT RESOURCE ESTIMATES (GRE)

The GRE contained in this attachment includes four tables. Table 1 represents the GRE for the RFP task orders for labor and non-labor resources, including materials, travel, and other expenses, broken up by task order for contract year (CY)1. Table 2 represents the GRE for the RFP task orders for labor broken up by Standard Labor Category (SLC) for CY1. Table 3 represents the GRE for the total contemplated statement of work including all expected task orders for labor broken up by SLC for CY1. Table 4 represents the difference between the GRE for the total contemplated statement of work including all expected task orders for labor and the GRE for the RFP Task/Delivery orders, broken up by standard labor category, and corresponds with the specified resources referenced in the pricing instructions and workbook

Table 1 – IDIQ Task Orders GRE (Represents all Sample RFP Task Orders in Contract Year 1)

Task Order	Task Order Number	Title	WYE CY1	Non Labor Resources ($K - CY1)
1	TO-RFP-01	Contract Management and Administration	48	3,140
2	TO-RFP-02	Flight Sustaining, Resupply, and Integration	51	472
3	TO-RFP-03	Information Architecture Infrastructure and Operations.	22	472
4	TO-RFP-04	Biomedical Operations	13	211
5	TO-RFP-05	Environmental Sciences	35	567
6	TO-RFP-06	Spaceflight Clinical Operations	62	146
7	TO-RFP-07	ISS Medical Projects (ISSMP)	67	120
8	TO-RFP-08	JSC Clinical Operations	47	1,500
Total	**Total**	**All Sample Task Orders**	**345**	**6,628**

Table 2 - Cumulative Labor WYE's by Skill Mix and Non-Labor Resources GRE (Represents all Sample RFP IDIQ TDOs in Contract Year 1)

SLC	WYE
Administration Specialist I	7
Administration Specialist II	4
Administration Specialist III	8
Architect	1
Business Specialist I	5
Business Specialist II	0

SLC	WYE
Configuration Management Specialist I	0
Configuration Management Specialist II	0
Drafter	0
Drafter (Senior)	0
Engineer I	41
Engineer II	27
Engineer III	12
Engineer IV	11
Engineer V	0
Engineering Technologist I	3
Engineering Technologist II	23
Engineering technologist III	1
Information Technologist (IT) I	4
Information Technologist (IT) II	10
Information Technologist (IT) III	2
Information Technologist (IT) IV	3
Manager I	2
Manager II	1
Med Level I	2
Med Level II	13
Med Level III	8
Med Level IV	3
Med Level V	8
Planner/Scheduler I	0
Planner/Scheduler II	0
Product Assurance Manager	0
Professional I/Technical Level I	18
Professional II/Technical Level II	18
Professional III / Technical Level III	6
Program Manager	1
Project Controls Specialist I	0
Project Controls Specialist II	0
Quality Assurance Specialist I	2

SLC	WYE
Quality Assurance Specialist II	0
Quality Engineer I	0
Quality Engineer II	0
Quality Engineer III	0
Safety Manager	0
Scientist I	18
Scientist II	17
Scientist III	17
Scientist IV	4
Scientist V	0
Statistician	0
Statistician (Senior)	1
Supervisor	17
Supervisor (Senior)	13
Technician I	3
Technician II	9
Technician Specialist	2
Other	0
Total Cumulative WYEs	**345**
Non Labor Resources ($K - CY1)	**6,628**

Table 3 - Cumulative Labor WYE's by Skill Mix and Non-Labor Resources GRE (Represents the entire SOW in Contract Year 1)

SLC	WYE
Administration Specialist I	8
Administration Specialist II	8
Administration Specialist III	10
Architect	2
Business Specialist I	7

SLC	WYE
Business Specialist II	2
Configuration Management Specialist I	0
Configuration Management Specialist II	0
Drafter	1
Drafter (Senior)	3
Engineer I	58
Engineer II	100
Engineer III	90
Engineer IV	30
Engineer V	0
Engineering Technologist I	9
Engineering Technologist II	27
Engineering Technologist III	6
Information Technologist (IT) I	6
Information Technologist (IT) II	7
Information Technologist (IT) III	5
Information Technologist (IT) IV	6
Manager I	5
Manager II	1
Med Level I	4
Med Level II	20
Med Level III	8
Med Level IV	5
Med Level V	11
Planner/Scheduler I	3
Planner/Scheduler II	2
Product Assurance Manager	2
Professional I/Technical Level I	22
Professional II/Technical Level II	25
Professional III / Technical Level III	10
Program Manager	1
Projects Controls Specialist I	0
Projects Controls Specialist II	0

SLC	WYE
Quality Assurance Specialist 1	3
Quality Assurance Specialist II	1
Quality Engineer I	3
Quality Engineer II	1
Quality Engineer III	1
Safety Manager	0
Scientist I	25
Scientist II	29
Scientist III	55
Scientist IV	48
Scientist V	0
Statistician	1
Statistician (Senior)	2
Supervisor	20
Supervisor (Senior)	30
Technician I	16
Technician II	14
Technician Specialist	7
Other	0
Total Cumulative WYEs	**760**
Non Labor Resources ($K - CY1)	**12,860**

Table 4 - Cumulative Labor WYE's by Skill Mix and Non-Labor Resources GRE (Represents the difference between the entire SOW and the Sample RFP IDIQ TDOs in Contract Year 1, and corresponds with the "Specified Resources" in the pricing instructions)

SLC	WYE
Administration Specialist I	1
Administration Specialist II	4

SLC	WYE
Administration Specialist III	2
Architect	1
Business Specialist I	2
Business Specialist II	2
Configuration Management Specialist I	0
Configuration Management Specialist II	0
Drafter	1
Drafter (Senior)	3
Engineer I	17
Engineer II	73
Engineer III	77
Engineer IV	20
Engineer V	0
Engineering Technologist I	6
Engineering Technologist II	4
Engineering Technologist III	5
Information Technologist (IT) I	2
Information Technologist (IT) II	1
Information Technologist (IT) III	3
Information Technologist (IT) IV	3
Manager I	3
Manager II	0
Med Level I	2
Med Level II	3
Med Level III	0
Med Level IV	2
Med Level V	3
Planner/Scheduler I	3
Planner/Scheduler II	2
Product Assurance Manager	2
Professional I/Technical Level I	4
Professional II/Technical Level II	7
Professional III / Technical Level III	3

SLC	WYE
Program Manager	0
Projects Controls Specialist I	0
Projects Controls Specialist II	0
Quality Assurance Specialist 1	1
Quality Assurance Specialist II	1
Quality Engineer I	3
Quality Engineer II	1
Quality Engineer III	1
Safety Manager	0
Scientist I	7
Scientist II	12
Scientist III	38
Scientist IV	43
Scientist V	0
Statistician	1
Statistician (Senior)	1
Supervisor	6
Supervisor (Senior)	16
Technician I	13
Technician II	5
Technician Specialist	5
Other	0
Total Cumulative WYEs	**415**
Non Labor Resources ($K - CY1)	**6,232**

ATTACHMENT L-5: SMALL BUSINESS SUBCONTRACTING TABLES

Table 1 – Proposed Goals as Percent of Contract Value and as Percent of Subcontracting Value:

	Column A	**Column B**	**Column C**
Business Category	Goal as Percent of Contract Value	Dollar Value to be subcontracted per Category	Goal as Percent of Subcontracting Value
Small Business Concerns			
Large Business Concerns	N/A		
Total Dollars to be Subcontracted	N/A		
Subcategories of Small Business Concerns			
Women Owned Small Business			
Small Disadvantaged Business			
Veteran Owned Small Business			
Service-Disabled Veteran-Owned Small Business			
HUBZone Small Business			
Historically Black Colleges and Universities			

Table 1 Example – Contract proposed at $100M with estimated subcontracts of $50M:

	Column A	Column B	Column C
Business Category	Goal as Percent of Contract Value	Dollar Value to be subcontracted per Category	Goal as Percent of Subcontracting Value
Small Business Concerns	25 percent	$25,000,000	50 percent
Large Business Concerns	n/a	$25,000,000	50 percent
Total Dollars to be Subcontracted	n/a	$50,000,000	100 percent*
Subcategories of Small Business Concerns**			
Women Owned Small Business	9 percent	$9,000,000	18 percent
Small Disadvantaged Business	5.0 percent	$5,000,000	10 percent
Veteran Owned Small Business	2.5 percent	$2,500,000	5 percent
Service-Disabled Veteran-Owned Small Business	1.5 percent	$1,500,000	3 percent
HUBZone Small Business	1.5 percent	$1,500,000	3 percent
Historically Black Colleges and Universities	1.5 percent	$1,500,000	3 percent

* Shall be 100% if any dollars are subcontracted. **The small business subcategories do not necessarily add up to the percentage and dollar amount in the "Small Business Concerns" category above, since some small businesses do not fall into any of the subcategories below, while others will fall into more than one subcategory below.

It is recommended that Offerors first complete Column B by entering the dollar amount the Offeror proposes to subcontract to each business category and subcategory. To complete Column A, divide the dollar amount in Column B by the total offered price of the proposal (that is, total contract value). In the example above, Column A for Veteran Owned Small Business = $2,500,000 divided by $100,000,000, or 2.5%. To complete column C, divide the corresponding amount in Column B by the amount in the "Total Dollars to be Subcontracted" cell in Column B. In the example above, Column C for Veteran Owned Small Business = $2,500,000 divided by $50,000,000, or 5%.

Table 2 – List of Small Business Subcontractors:

Company Name	DUNS/ Cage Code	Type of Business	NAICS	SOW Ref.	Dollar Value
Total					

Table 2 Example:

Company Name	DUNS/ Cage Code	Type of Business	NAICS	SOW Ref.	Dollar Value
XYZ Corp	123456789	SB, SDB	811212	3.2	$400,000
Acme Ltd.	5KWH50	Large	541579	2.1	$1,520,000
Smith & Jones		VOSB, SDVOSB	541512	2.4	$4,650,000
Total					**$6,570,000**

ATTACHMENT L–6: PAST PERFORMANCE QUESTIONNAIRE

ATTACHMENT L-6 PAST PERFORMANCE QUESTIONNAIRE (HHPC)

Complete one set of letters and forms for each Past Performance reference. Additional space or blank sheets may be added to answer any question

Transmittal Letter to Accompany Present/Past Performance Questionnaire

FROM:

SUBJECT: Present/Past Performance Questionnaire for Contract(s):

We are currently responding to NASA Johnson Space Centers (JSC's) Request For Proposal (RFP) for the JSC Human Health and Performance Contract. This RFP requires Offerors to identify customers and solicit their response regarding our performance.

We are providing present and past performance data to NASA/JSC for consideration for our intent to propose on NNJ15522169R. The RFP instructs that we provide our customers with the attached questionnaire and requests that you provide the data by **January 7, 2015** directly to:

Name: Roger Roberts

EMAIL: **roger.m.roberts@nasa.gov**

You are encouraged to submit the completed questionnaire by email.

We have identified (_____) of your organization as the point of contact based on their knowledge concerning our work.

The information contained in the completed Past Performance Questionnaire is considered sensitive and cannot be released to us, the Offeror. If you have any questions about the acquisition or the attached questionnaire, your questions must be directed back to the JSC point of contact identified above via email. Thank you for your timely assistance.

Sincerely,

(Company Official)

I. CONTRACT IDENTIFICATION

1. Contractor (Company/Division/Mailing Address):

2. Contract Number:

3. Contract Type:

4. Briefly describe the product/service provided. Please attach the Statement of Work or relevant sections from the Statement of Work for work performed by the contractor, if available.

5. Period of Performance (basic and any options):

6. Identify Key Positions for the referenced contract:
   Program Manager:

   Others:

7. During this contract period of performance, this firm was the:
   ___Prime Contractor ___Significant Subcontractor ___Team Member

   ___Other (please describe) _____

8. If not a prime contractor, what is the percentage of the total contract value for this contractor and what is the total prime contract value? _____

9. Does a corporate or ownership relationship exist between the contractor being evaluated and your organization? _____ if yes, please explain below.

10. Please describe any unique contract features or conditions:

II. ORGANIZATION EVALUATION

Based on your knowledge of the contract identified above, please provide your assessment of how well the contractor performed according to the performance standards identified in the following Sections: A. Technical; B. Schedule C. Cost; and D. Management. Please provide a rating (Exceptional "E", Very Good "VG", Good "G", Fair "F", and Poor "P") in accordance with the definitions below for the following **evaluation criteria.** Please use an "X" in the appropriate column to indicate your rating. If a criterion does not apply, then please indicate "N/A". Please provide narrative answers for the questions following the tables below. It is very important to keep in mind that only performance in the past 5 years will be considered for relevancy.

- Exceptional – Exceeded contract requirements to an exceptional degree. Performance was exemplary and accomplished in a timely, efficient, and economical manner. Very minor (if any) deficiencies had no adverse effect on overall performance.

- Very Good – Exceeded most of the contract requirements to a large degree. Performed above expectations and work accomplished in a timely, efficient, and economical manner. Any deficiencies identified had no adverse effect on overall performance.

- Good – Fulfilled contract requirements. Performance was effective and most requirements were met in a timely, efficient, and economical manner. Reportable deficiencies had little identifiable effect on overall performance.

- Fair – Fulfilled most but not all contract requirements. Performance was marginal with most requirements being met in a timely manner. Identified deficiencies would have had adverse effects; however corrective action was taken.

- Poor – Failed to meet contract requirements. Corrective action was required in one or more areas; and deficiencies did adversely affect overall performance.

A. TECHNICAL PERFORMANCE

Technical Performance Category	N/A	P	F	G	VG	E
1. Overall performance in planning and controlling the work requirements						
2. Overall quality of services, deliverables and support provided.						
3. Compliance with technical requirements and performance standards in providing safety and mission assurance support and services						
4. Insight in understanding customer requirements and priorities						
5. Initiative in identifying and resolving unforeseen technical and schedule problems (causes, impacts, and resolutions)						
6. Surveillance and management of major/critical subcontractors						
7. Contractor's ability to identify and correct performance deficiencies						
8. Ability to use meaningful metrics and other tools to accurately measure, track program progress, and guide future actions						
9. Record in demonstrating a thorough understanding of the nature of the work required and the disciplines and types of employees required to accomplish them						
10. Record in identifying and mitigating risks and communicating the nature and mitigation strategies to the customer for discussion and decision.						
11. Content, accuracy, and timeliness of technical reports						
12. Record in completing technical tasks/milestones, deliverables within established schedules						
13. Effectiveness of technical training/certification program						

14. Please provide a short narrative as to why you chose the adjective you did for the 13 areas above, especially for those answers that are either "poor" or "fair" or "exceptional."

15. What is the contractor's track record for engineering and providing quality hardware, especially for spaceflight?

16. What is the track record for finding innovative solutions for real-time operational issues during a mission including, but not limited to, issues related to medical health of the crew or environmental monitoring?

17. Particular strong/weak points of contractor's performance.

B. SCHEDULE PERFORMANCE

Schedule Performance Category	N/A	P	F	G	VG	E
1. Ability to provide a qualified workforce to fulfill schedule requirements						
2. Content, accuracy, and timeliness of technical reports						
3. Timeliness and accuracy of cost and business reports						
4. Record in completing technical tasks/milestones, deliverables within established schedules						

5. Please provide a short narrative as to why you chose the adjective you did for the 4 areas above, especially for those answers that are either "poor" or "fair" or "exceptional."

C. COST PERFORMANCE

Cost Performance Category	N/A	P	F	G	VG	E
1. Adherence to estimated costs and contract cost targets.						
2. Ability to anticipate, identify and control cost growth.						

3. Please provide a short narrative as to why you chose the adjective you did for the 2 areas above, especially for those answers that are either "poor" or "fair" or "exceptional."

4. Contract Value:

	Initial Value	Current/Final Value
Estimated Cost	$	$
Fee/Profit	$	$
Total Value	$	$

Briefly describe any change(s) from original contract value:

5. If an award/incentive fee type contract, percent of available Award Fee earned ___%

6. Was there a cost overrun/under-run? ___Yes ___No

If yes, what was the magnitude? Please explain:

D. MANAGEMENT EFFECTIVENESS

Contract Management Effectiveness	N/A	P	F	G	VG	E
1. Ability to effectively plan efforts, provide realistic cost and schedule estimates including accurate end of year projections etc.						
2. Ability to effectively plan efforts, provide realistic cost and schedule estimates, etc.						
3. Demonstration of understanding of nature of work and the disciplines and types of employees required to accomplish tasks.						
4. Ability to submit accurately and timely financial reports and credible forecasts of future resource requirements						
5. Rate the degree of monitoring/guidance required in contract administration						
6. Contract change order management (contractor commitment to negotiate and implement contract changes in a timely manner)						
7. Rate the contractor's record in effectively selecting and managing subcontractors						
8. Rate the contractor's history of reasonable and cooperative behavior and commitment to customer satisfaction						
9. Rate the contractor's record in reacting quickly and adjusting staffing levels and make-up to meet changing requirements						
10. Performance in managing problems and implementing corrective actions						
11. Record in managing multiple and diverse projects/tasks from planning through execution phases						
12. Rate the contractor's effectiveness in drawing on corporate resources to mitigate risks to the project						
13. Record in adhering to or ability to meet goals for Small Business Subcontracting Goals						
14. Record with Contractor's compliance with export, classified, and any other sensitive information control requirements.						
15. Record in complying with applicable safety, health, and environmental standards and procedures						
16. Overall effectiveness in communications, including lines of						

authority and reporting relationships						

17. Please provide a short narrative as to why you chose the adjective you did for the 16 areas above, especially for those answers that are either "poor" or "fair" or "exceptional."

18. Did the Contractor management team show innovation and a proactive approach to problem identification and resolution?
☐ No ☐ Yes – If yes, please provide one or two examples.

19. Has this contract been partially or completely terminated for default or convenience?

☐ No ☐ Yes – If yes, please provide details:

20. What is the track record for efficiently managing the following:
a) Aerospace medicine clinics
_____

b) Biomedical and Clinical labs
_____

c) Environmental Labs and
_____

d) Human Factors Labs
_____

21. What is the contractor's experience either managing or performing research?

22. How many people were employed under the contract? _____

23. Did any accidents or industrial illnesses resulting in lost time occur under this contract?

☐ No ☐ Yes – If yes, please provide details, including any actions taken to address the causes:

24. Additional Comments:

III. RESPONDENT INFORMATION

A. Name of Evaluator:

B. Position Title:

C. Agency/Company Name and Mailing Address:

D. Telephone Number:

E. Facsimile Number:

F. E-Mail Address:

G. Your Role in the Program/Contract:

H. Length of involvement in this program/contract:

I. Date questionnaire completed:

ATTACHMENT L–7: IDIQ COST WORKBOOK

IDIQ Cost Workbook

An Excel workbook containing the various templates used for pricing is provided as a separate Microsoft Excel Workbook, which are attached to this document. The file is entitled as follows:

1. L-7 IDIQ Cost Templates

ATTACHMENT L–8: KEY PERSONNEL RESUME

KEY PERSONNEL RESUME

Complete one form for each proposed Key Person. The resume shall not exceed two pages.

1. Name

2. Education
    a. Degrees, dates, majors, schools
    b. Other education or training and dates
    c. Licenses, certifications, or professional designations (locations)

3. Proposed assignment: title and organizational element

4. Current position and beginning date

5. Current significant responsibilities or projects

6. Previous positions (last five years minimum)
    a. Firm and period of employment
    b. Significant experience
    c. Specific projects
    d. Immediate supervisor's name, address, telephone number and employer. (Indicate if current supervisor may be contacted)
    e. References including position held, point of contact and phone number.

7. Professional activities and achievements
    a. Awards
    b. Significant publications
    c. Professional societies
    d. Patents
    e. Significant achievements

8. Unique qualifications. Summarize any relevant unique experience, education, or personal characteristics that may not be evident from the above information.

9. Evidence of commitment to the program.

ATTACHMENT L–9: SUBCONTRACTOR/TEAMING OR JOINT VENTURE PARTNER/PROGRAM MANAGER CONSENT FOR THE RELEASE OF PAST PERFORMANCE INFORMATION TO THE PRIME CONTRACTOR

[Past performance information concerning key personnel, subcontractors and teaming partners cannot be disclosed to a private party without the subcontractor‘s or teaming partner‘s consent. Because a prime contractor is a private party, the Government will need that consent before disclosing key personnel, subcontractor/teaming partner past and present performance information to the prime during exchanges. In an effort to assist the Government in assessing your past performance relevancy and confidence, we request that the following consent form be completed by the major subcontractors/teaming partners identified in your proposal. The completed consent forms should be submitted as part of your Past Performance Volume]

SAMPLE

Dear Mr. Roberts

We are currently participating as a *(** please fill in with, e.g., program manager, subcontractor/teaming partner*) with (*prime contractor or name of entity providing proposal*) in responding to the NASA, Johnson Space Center, Request for Proposal (*solicitation number*) for the (*program title or description of effort*).

We understand that the Government is placing increased emphasis on past performance in order to obtain best value in source selections. In order to facilitate the performance confidence assessment process, we are signing this consent form to allow you to discuss our past and present performance information with the prime contractor during the source selection process.

_____

(Signature and Title of individual who has the authority to sign for and legally bind the company)

Company Name:

Address:

ATTACHMENT L–10: PAST PERFORMANCE INFORMATION MATRIX

Past Performance Information Matrix

An Excel spreadsheet containing the past performance matrix of relevant experience is attached to this document. The file is titled as follows:

1. L-10 Past Perf Info Matrix

SECTION M- EVALUATION FACTORS FOR AWARD TO OFFERORS

M.1 LISTING OF PROVISIONS INCORPORATED BY REFERENCE

Provision(s) at the beginning of this Section are incorporated by reference, with the same force and effect as if they were given in full text. Provisions incorporated by reference which require a fill-in by the Government include the text of the affected paragraph(s) only. This does not limit the provision to the affected paragraph(s). The Contractor is responsible for understanding and complying with the entire provision.

NOTICE: The following contract provisions pertinent to this section are hereby incorporated by reference:

I. **FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)**

52.217-5 EVALUATION OF OPTIONS (JUL 1990)

II. **NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS**

NONE INCLUDED BY REFERENCE.

(End of Provision)

M.2 RESERVED

M.3 EVALUATION FACTORS FOR AWARD

An initial review of proposals will be conducted to determine acceptability of the proposals in accordance with NFS 1815.305-70, Identification of Unacceptable Proposals. All unacceptable proposals will be eliminated from further evaluation.

Proposals will be evaluated by the Source Evaluation Board (SEB) in accordance with applicable regulations which include the Federal Acquisition Regulation (FAR) and the NASA FAR Supplement. The SEB will carry out the evaluation activities and report its findings to the Source Selection Authority (SSA) who is responsible for making the source selection decision.

The Government will award a contract resulting from this solicitation to the Offeror whose proposal represents the best value to the Government. This procurement shall be conducted utilizing a combination of mission suitability, past performance and cost/price evaluation factors. The lowest price proposals may not necessarily receive an award; likewise, the highest technically rated proposals may not necessarily receive an award.

Of the three evaluation factors, mission suitability and past performance, when combined, are more important than cost. Mission suitability is more important than cost. Cost is more important than Past Performance.

The Government will evaluate the Offeror's proposal using the factors and sub-factors shown below. Although proposals are organized by factors and sub-factors, the Government will

conduct an evaluation to consider consistency among proposal information. Therefore, all aspects of the Offeror's proposal will be considered during the evaluation process, including the Offeror's proposed Model Contract.

(End of Provision)

M.4 MISSION SUITABILITY FACTOR

The Mission Suitability factor and associated sub-factors are used to assess the ability of the Offeror to provide and administer the requirements of the SOW. The Mission Suitability sub-factors and their corresponding weights reflecting relative importance are listed below. These weights are intended to be used as a guideline in the source selection decision-making process.

Mission Suitability Sub-Factors	**Points**
Management Approach	350
Technical Approach	550
Small Business Participation	100
TOTAL	**1000**

Proposals will be evaluated and scored numerically based upon the sub-factors set forth below. During proposal evaluation, the Offeror's Mission Suitability score will be negatively affected should the Government determine that the Offeror's response lacks detail and/or rationale, uses ambiguous terms or inconsistencies, or provides unrealistic approaches. The Offeror is also notified that a lack of resource realism may adversely affect their Mission Suitability score and result in cost adjustments under the Cost/Price factor M.5.

M.4.1 MANAGEMENT APPROACH, MISSION SUITABILITY SUB-FACTOR 1

The Offeror's management approach (with supporting rationale) for fulfilling the contract requirements will be evaluated using the Management Approach subfactor elements as described below. Failure to capture proposed innovations in the model contract may result in loss of mission suitability points.

MA1. Overall Management Approach –

The Offeror's Overall Management Approach as defined in the Contract Management Plan, Contract WBS and Dictionary, Information Technology Security Program Plan and Reports, and Quality Plan will be evaluated for overall demonstrated understanding, completeness, feasibility, and effectiveness.

MA2. Key Personnel Approach –
The Offeror's Key Personnel Approach will be evaluated for overall demonstrated understanding, completeness, feasibility, and effectiveness.

MA3. Staffing Approach –
The Offeror's Staffing Approach, as defined in the Total Compensation Plan and Staffing and Critical Skills Plan, will be evaluated for overall demonstrated understanding, completeness, feasibility, and effectiveness.

MA4. Contract Phase-In Approach –

The Offeror's contract phase-in approach as defined in the Contract Phase-in Plan will be evaluated for overall demonstrated understanding, completeness, feasibility, and effectiveness.

MA5. Safety and Health Plan –
The Offeror's Safety and Health Plan will be evaluated for overall demonstrated understanding, completeness, feasibility, and effectiveness.

M.4.2 TECHNICAL APPROACH (TA) MISSION SUITABILITY SUB-FACTOR 2

The Offeror's demonstrated understanding of the technical requirements (with supporting rationale) will be evaluated in Technical Approach sub-factors as described below. For any proposed innovations, the Government will evaluate the potential feasibility and effectiveness including feasibility of contract implementation, and will assess potential benefits and risks to contract performance. Failure to capture proposed innovations in DRD MGMT-09 "Technical Innovations Proposed Contract Language" may result in loss of mission suitability points.

TA1. Scenarios: The Government will evaluate the Offeror's Scenario responses for overall demonstrated understanding, completeness, feasibility, and effectiveness.

TA2. IDIQ Task/Delivery Orders: The Government will evaluate the Offeror's Specific Technical Understanding and Resources response for overall demonstrated understanding, completeness, feasibility, and effectiveness.

M.4.3 SMALL BUSINESS UTILIZATION (SBU) MISSION SUITABILITY SUB-FACTOR 3

The evaluation of Small Business Subcontracting and Commitment to the Small Business Program applies to all Offerors, except that Small Businesses are not required to submit a Small Business Subcontracting Plan.

SBU1. Small Business Subcontracting –

1) The Small Business Subcontracting Plan will be evaluated in terms of the Offeror's proposed subcontracting goals (overall subcontracting goals and individual subcontracting goals by small business category) in comparison to the Contracting Officer's assessment of the appropriate subcontracting goals for this procurement. The Offeror's Small Business Subcontracting Plan will also be evaluated in terms of meeting the requirements of FAR 19.704, Subcontracting Plan Requirements. The evaluation of the Small Business Subcontracting Plan will be on the basis of total contract value.

2) Small businesses are not required to submit subcontracting plans. NASA will only evaluate the amount of work proposed to be performed by the small business prime and any small business at the first tier subcontract level. The proposed amount of work to be done by the prime small business and first tier small business subcontractors will be evaluated against the Contracting Officer's assessment of the overall subcontracting goal for this procurement. Individual subcontracting goals by small business categories will not be evaluated for small business primes and their first tier subcontractors.

SBU2. <u>Commitment to the Small Businesses</u> –

1) NASA will evaluate the extent to which any work performed by a small business subcontractor(s) is identified as "high technology." NASA also will evaluate the extent of commitment to use the subcontractor(s) (enforceable vs. non-enforceable commitments.)

2) NASA will evaluate the extent to which the identity of the small business subcontractor is specified in the proposal as well as the extent of the commitment to use small businesses. (For small business Offerors, NASA will evaluate this only if subcontracting opportunities exist.)

3) NASA will evaluate the Offeror's established or planned procedures and organizational structure for small business outreach, assistance, participation in the Mentor Protégé program, counseling, market research and small business identification, and relevant purchasing procedures. (For large businesses Offerors, this information should conform to its submitted Small Business Subcontracting Plan. For small business Offerors, NASA will evaluate this only if subcontracting opportunities exist.)

(End of Provision)

M.5 COST/PRICE FACTOR

To ensure that the final agreed-to prices are fair and reasonable the Government will perform a price analysis and will also perform a cost analysis to include a cost realism analysis in accordance with FAR 15.305 - Proposal Evaluation, FAR 15.404 - Proposal Analysis, and NASA FAR Supplement (NFS) 1815.305 - Proposal Evaluation.

<u>IDIQ</u> –
The Government will evaluate the proposed,Task/Delivery Orders and Specified Resources and develop a probable cost estimate. As part of the cost realism analysis, the Government will evaluate proposed resources for all Task/Delivery Orders, including any cost impacts resulting from proposed innovations, and all rates proposed for Task/Delivery Orders and Specified Resources. The Government will also evaluate the reasonableness of any proposed non-labor resources. This evaluation of the cost factors will result in a probable cost which may differ from the proposed cost and reflects the Government's best estimate of the cost of any contract that is most likely to result from the Offeror's proposal. The proposed Fully-Burdened Rates (FBRs) for the entire potential period of performance (5 base years, 1 three-year option, and 1 two-year option) will be evaluated. The FBRs used in developing the cost proposal shall match the FBRs in Section B of the model contract. However, if these do not match, the Government will use the FBR in Section B as a basis for the proposed cost.

<u>Price and Probable Costs for Selection Purposes</u> –
The results of the Government's cost and price evaluation will be presented to the Source Selection Authority (SSA) for consideration in making the source selection. The cost and price evaluation of all RFP Task/Delivery Orders and Specified Resources for the 5 base years plus all option periods will be considered for selection purposes.

<u>Resource Realism –</u> The Offeror is notified that a lack of resource realism may adversely affect

their Mission Suitability scores and result in cost realism adjustments under the cost factor.

FFP Phase-in –
To promote fair competition, the price of phase-in is not a discriminator for selection purposes, as long as the proposed price of phase-in is reasonable. The Fixed Price proposed for phase-in will only be subject to price analysis. The price of phase-in will be compared to the proposed prices of other Offerors to establish that the price is reasonable. An unreasonable phase-in price may be addressed in discussions.

(End of Provision)

M.6 PAST PERFORMANCE FACTOR

The evaluation of Past Performance will be conducted in accordance with the FAR 15.305(a) (2), Proposal Evaluation, and NFS 1815.304-70, NASA Evaluation Factors. The Past Performance evaluation is an assessment of NASA's confidence in the Offeror's ability to perform the solicitation requirements, based upon the Offeror's relevant performance under previously awarded contracts.

Past Performance indicates how well an Offeror performed on earlier work and can be a significant indicator of how well it can be expected to perform the work at hand. The Offeror's past performance (contract performance and quality performance), including recent experience, will be evaluated by the SEB. The Government will use past performance information from proposal data required by provision L.22.4, Volume II – Past Performance, information obtained by the SEB team based on communications with listed references, as well as data independently obtained from other government and commercial sources, such as the NASA Past Performance Database and similar systems of other governmental departments and agencies, Defense Contract Management Agency (DCMA) channels, interviews with client program managers and contracting officers, and other sources known to the Government, including commercial sources. Offerors are to note that, in conducting this assessment, the Government reserves the right to use both data provided by the Offeror and data obtained from other sources. The Government will consider the number and severity of problems, the effectiveness of corrective actions taken and the overall record of past performance. It shall also consider the Offeror's record for adherence to contract schedules and cost control.

The past performance evaluation will assess the degree of confidence the government has in the Offeror's ability to fulfill the solicitation requirements for the contract while meeting schedule, budget, and performance quality constraints. The past performance evaluation considers each Offeror's demonstrated record of performance in supplying the requirements of this solicitation that meet the user's needs. The Offeror's past performance record will be examined for recent and relevant past performance to determine its ability to perform the required work.

Recency: Contracts with more recent performance will be considered to be more relevant than those with more distant performance, assuming all other considerations to be equal. If the contract is still ongoing, it must have a documented performance history. The Government will not consider performance on a newly awarded contract that has no documented performance history (in other words, projects that are less than six months under contract. Only contracts with performance within **five (5)** years from date of the solicitation will be considered recent.

Relevancy: For purposes of this procurement, relevancy will be assessed using the following

definitions:

Very Relevant	Present/past performance effort involved essentially the same scope, magnitude of effort and complexities this solicitation requires..
Relevant	Present/past performance effort involved much of the scope, magnitude of effort and complexities this solicitation requires.
Somewhat Relevant	Present/past performance contractual effort involved some of the scope, magnitude of effort and complexities than this solicitation requires.
Not Relevant	Present/past performance effort did not involve any of the scope, magnitude of effort and complexities this solicitation requires.

Confidence Ratings: Past Performance will be evaluated for each Offeror using the following levels of confidence ratings:

Very High Level of Confidence: The offeror's relevant past performance is of exceptional merit and is very highly pertinent to this acquisition, indicates exemplary performance in a timely, efficient, and economical manner and very minor (if any) problems with no adverse effect on overall performance. Based on the offeror's performance record, there is a very high level of confidence that the offeror will successfully perform the required effort.

High Level of Confidence: The offeror's relevant past performance is highly pertinent to this acquisition; demonstrating very effective performance that would be fully responsive to contract requirements. Offeror's past performance indicates that contract requirements were accomplished in a timely, efficient, and economical manner for the most part, with only minor problems that had little identifiable effect on overall performance. Based on the offeror's performance record, there is a high level of confidence that the offeror will successfully perform the required effort.

Moderate Level of Confidence: The offeror's relevant past performance is pertinent to this acquisition, and it demonstrates effective performance. Performance was fully responsive to contract requirements; there may have been reportable problems, but with little identifiable effect on overall performance. Based on the offeror's performance record, there is a moderate level of confidence that the offeror will successfully perform the required effort.

Low Level of Confidence: The offeror's relevant past performance is at least somewhat pertinent to this acquisition, and it meets or slightly exceeds minimum acceptable standards. Offeror achieved adequate results; there may have been reportable problems with identifiable, but not substantial, effects on overall performance. Based on the offeror's performance record, there is a low level of confidence that the offeror will successfully perform the required effort. Changes to the offeror's existing processes may be necessary in order to achieve contract requirements.

Very Low Level of Confidence: The offeror's relevant past performance does not meet minimum acceptable standards in one or more areas; remedial action was required in one or more areas. Performance problems occurred in one or more areas which, adversely affected overall performance. Based on the offeror's performance record, there is a very low level of confidence that the offeror will successfully perform the required effort.

Neutral/Unknown Confidence: In the case of an offeror without a record of relevant past

performance or for whom information on past performance is not available, the offeror may not be evaluated favorably or unfavorably on past performance [see FAR 15.305(a) (2) (ii) and (iv)].

More recent and relevant past performance will receive greater consideration in the performance confidence assessment than less recent and relevant performance. Relevancy will be based on the magnitude and complexity of the projects being evaluated for past performance. Contracts that exhibit all specific trades/type of work will be considered more relevant than contracts limited to specific trades only. The proposed past performance effort of the program manager will be considered less important than the proposed past performance effort of the same magnitude and complexity of that offered by a prime or subcontractor.

(End of Provision)

M.7 RESPONSIBILITY CONSIDERATIONS (VOLUME IV)

An Offeror must be considered to be responsible for award in accordance with FAR 9.104. Organizational Conflict of Interest Information, Business System Adequacy, and the Government Property Management Plan are used to determine responsibility. The items listed below are important Responsibility Considerations; however, these items may not constitute all Responsibility Considerations that will be addressed by the SEB pursuant to FAR 9.104.

The Contracting Officer may choose to evaluate this information for the offerors in the Competitive Range or the apparent Successful Offeror only.

(a) Business System Adequacy

In accordance with FAR 16.301-3, Cost-Reimbursement Contracts – Limitations, the Offeror's accounting system status will be reviewed to determine if the Offeror has an adequate accounting system. A contract may only be awarded to an Offeror with an accounting system determined to be adequate by the Government. Other business systems, such as the Cost Accounting Standards Disclosure Statement will be reviewed for responsibility in accordance with FAR 9.104-1, General Standards.

(b) Organizational Conflict of Interest (OCI) Information

The Government will perform an analysis to ensure an Organizational Conflict of Interest issue that cannot be mitigated does not exist. The OCI information will be assessed to verify the offeror is considered to be responsible for award. If it appears an OCI issue does exist that the offeror's plan failed to mitigate, the government must notify the contractor, provide the reasons therefore, and allow the contractor a reasonable opportunity to respond. The contracting officer will make the final determination if the OCI issue exists and can be mitigated.

(c) Property Management Plan

A Property Management Plan (DRD HHPC-BP-09) is required from all offerors with the its proposal to support an efficient responsibility decision

(d) Export Control Plan

A Export Control Plan (DRD HHPC-BP-04) is required from all offerors with the its proposal to support an efficient responsibility decision

M.8 MODEL CONTRACT

The model contract will not be evaluated for selection purposes. It will, however, be reviewed to ensure that it was signed by a person authorized to commit the Offeror, that there is completion of all fill-ins, and that it accurately captures the content as set forth in the Offeror's proposal.

Offerors are required to meet all solicitation requirements, such as terms and conditions, representations and certifications, and technical requirements, in addition to those identified as areas, factors, and sub-factors to be eligible for award. Failure to comply with solicitation requirements may result in a weakness, deficiency or in an Offeror being removed from consideration for award.

(End of Provision)

[END OF SECTION]