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 Plan	12/01/2011	MGMT-01	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**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 DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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.

B. CONTENT:

The contract management plan shall address the contractor's processes for work planning, definition and authorization, scheduling, budgeting, data accumulation, safety and mission assurance, corrective action system processes and procedures, subcontractor management, material control, indirect cost management, and organization structure. The contract management plan shall also discuss the management relationships between the contractor's key personnel and the associated NASA personnel. The plan shall also describe the approach for tracking and allocating all costs (labor and non labor) associated with SOW Section 1 to each Task Order. The contract management plan shall also describe plans for the Contractor's off-site facilities including lease arrangements. This shall include plans for flexibility to accommodate fluctuations in workload or the availability of on-site space for the entire period of performance.

C. FORMAT:

Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). The contract management plan shall be delivered in native format and be compatible with JSC standard software loads.

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	MGMT-02	NNJ13HA01C

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 DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 should 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 within the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/18/2011	MGMT-03	NNJ13HA01C

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 MGMT-13 Small Business Subcontracting Plan and Reports BP-01 NASA Contractor Financial Management Report SMA-03 Safety and Health Plan RV-02 Regular Status Report/Summary Review

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 COTR. The following shall be addressed in the report:

1. SAFETY SUMMARY
   - OSHA reportable events
   - Personnel Injuries
   - JSC on-site Close Calls and Status involving JETS contractor personnel
   - Inspection Reports of on-site facilities dedicated to JETS 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 Task Order)
   - 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 Work Breakdown Structure (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)
   - Summary of small business performance
   - Any changes to Organization Conflict of Interest status
   - Technology, Innovations, and Process Improvements status
   - 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 (SOW 1.1). The COTR and the contractor shall agree upon the contents of the review. The Summary Review shall not address the contents of Resource Performance Summary Section above. 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 within the environment associated with this data, in the Engineering Directorate Design Data Management System (DDMS). 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	MGMT-04	NNJ13HA01C

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-05 Contract Phase-In Plan MGMT-09 Total Compensation Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Offeror 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, including plans for retaining critical skills given unpredictable variations in workload
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 element is due with final submission of the Staffing and Critical Skills Plan (at Contract Start + 30 days)

C. FORMAT:

Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	MGMT-05	NNJ13HA01C

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 Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The JETS Contract Phase-In Plan provides plans for the transfer of all anticipated on-going development and operation activities during the 60 day contract Phase-In period along with supporting logic and rationale. After approval, the Contract Phase-In Plan will become part of the contract as Attachment J-10.

B. CONTENT:

This Contract 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 orders and associated task 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 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 customers and the Government.
   7. A description of tasks, if any, requiring a continuation of support from the incumbent contractor.

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 (joint inventory with incumbent)
   5. Installation Accountable Government Property (joint inventory with incumbent)

   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 shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). 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 (DRL).

E. DISTRIBUTION:
Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:
NPR 1600.1: NASA Security Program Procedural Requirements.

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)
Wage/Salary and Fringe Benefit Data	12/01/2011	MGMT-06	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
The Wage/Salary and Fringe Benefit Data will be used by the NASA Contracting Officer and the Contractor Industrial Relations Officer to assist in the monitoring of Service Contract Act compliance.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
FAR 52.222-1, Notice to the Government of Labor Disputes FAR 52.222-40, Notification of Employee Rights Under the National Labor Relations Act FAR 52.222-41, Service Contract Act of 1965 FAR 52.222-42, Statement of Equivalent Rates for Federal Hires	

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Wage/Salary and Fringe Benefit Data shall be submitted by the Contractor, and any subcontractors, which are subject to the provisions of the Service Contract Act, to the Contracting Federal Agency. This requirement is in accordance with FAR regulations 22.1007 and 22.1000.

B. CONTENT:

The Wage/Salary and Fringe Benefit Data shall contain the data included in the enclosed DRD forms, titled "Wage/Salary Rate Information", "Fringe Benefit for Service Employees", and Fringe Benefits per Collective Bargaining Agreement". The Wage/Salary Rate Information shall contain a listing of all exempt and nonexempt labor classifications on the contract. Separate forms shall be utilized for classifications working in different geographic areas and for each subcontractor. Wage determination numbers, appropriate labor organization names, and subcontractor names, shall be reflected. All nonexempt labor classifications shall be matched to wage determination classes or to Collective Bargaining Agreement (CBA) classifications if union represented employees are working on the contract. Annotate exempt or nonexempt and union or nonunion. The current hourly rates shall reflect the actual lowest and highest paid employees, along with a computed average rate. State the number of employees in each labor category. Separate Fringe Benefit forms shall be completed for non-represented classifications and for each separate CBA, if applicable. A separate form shall be completed for the prime and each subcontractor.

C. FORMAT:

The Wage/Salary and Fringe Benefit Data shall be in a format substantially the same as enclosed with this DRD. (Forms 1, 2 and 2A enclosed)

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

FORM 1

Wage/Salary Rate Information

Illustration of required data:

Standard Labor Category	Wage Determination Classification	Exempt or Nonexempt	Union or Nonunion	Current Hourly Rate	FTE No. of Employees
Program Manager	Not Required	E	N	$40.00	1
Supervisor	Not Required	E	N	$32.00	1
Electrical Technician	Electronics Technician Maintenance II	N	U	$23.89	12
File Clerk	General Clerk III	N	N	$14.90	2
Secretary	Secretary II	N	N	$18.57	1

Submit data in the above-illustrated format for all labor classifications used, or planned to be used, on this contract. All nonexempt labor classifications must be matched to wage determination classes listed in the area wage determination or applicable collective bargaining agreement.

Wage/Salary Rate Information

Contractor's Labor Category	Wage Determination Classification	Exempt or Nonexempt	Union or Nonunion	Current Hourly Rate	FTE No. of Employees

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

FORM 2

FRINGE BENEFITS PER COLLECTIVE BARGAINING AGREEMENT

For period from _____ to _____

Contractor:

Contract Number:

Number of employees in bargaining unit: _____

Total number of employees on contract: _____

1. Shift Differential: (Describe any pay over and above base rates for 2nd, 3rd, weekend, or other shifts.)

2. Health and Welfare Items and Other Fringe Items: (Indicate whether or not coverage is provided to employees and state current average hourly cost per employee covered by a Collective Bargaining Agreement.)

	Item	**Coverage Provided (Yes or No)**	**Average Hourly Cost**
a.	Life Insurance		
b.	Accidental Death		
c.	Disability		
d.	Medical and Hospital		
e.	Dental		
f.	Retirement Plan		
g.	Savings/Thrift Plan		
h.	Sick Leave		
i.	Tuition		
j.	Other (Describe)		
	TOTAL		

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

3. Paid Absences:

	Service Requirement	Days per Year
a.	Vacation	
b.	Holiday	
c.	Sick Leave	
d.	Jury Leave	
e.	Funeral Leave	
f.	Military Leave	
g.	Other (Describe)	

4. Severance Pay: (Briefly describe terms and amounts.)

5. Other Fringe Benefits: (Describe any other fringe benefits not included above, and show average hourly cost.)

6. Premium Pay: (Discuss all premium pay provisions not previously shown on this form.)

_____ _____

Signature of Company Representative Date

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

FORM 2A

FRINGE BENEFITS FOR SERVICE EMPLOYEES

For Period from _____ to _____

Contractor:

Number of nonexempt employees on contract: _____

Total number of employees on contract: _____

1. Health and Welfare Items and Other Fringe Items:
(Indicate whether or not coverage is provided to employees and state current average hourly cost per service employee.)

Item		**Coverage Provided**	**Average Hourly Cost**
a.	Life Insurance		
b.	Accidental Death		
c.	Disability		
d.	Medical & Hospital		
e.	Dental		
f.	Retirement Plan		
g.	Savings/Thrift Plan		
h.	Sick Leave		
i.	Tuition Reimbursement		
j.	Other (Describe)		

2. Paid Absences

		Service Requirement	**Days per Year**
a.	Vacation		
b.	Holidays		
c.	Sick Leave		
d.	Jury Leave		
e.	Funeral Leave		
f.	Military Leave		
g.	Other (Describe)		

_____ _____

Signature of Company Representative Date

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)
Labor Relations Plan	12/01/2011	MGMT-07	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
To evaluate the Contractor's approach to working with organized labor.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
FAR 52.222-1: Notice to the Government of Labor Disputes	MGMT-05 Contract Phase-In Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

A Labor Relations Plan is required from the Prime Contractor and any subcontractor proposing work on the contract that is currently represented by organized labor. After approval, the Labor Relations Plan will become part of the contract as Attachment J-16. The content provides an overview of the Contractor's approach to working with organized labor and describes experience with organized labor.

B. CONTENT:

This content will be used to evaluate the Contractor's approach towards working with organized labor.

1. Describe the Contractor's company plan with respect to the use of organized labor on this contract.
2. Describe the Contractor's plan for recognizing the existing collective bargaining agreements, bridge agreements, negotiating new agreements, or complying with the economic terms only, and not recognizing the union.
3. Provide the name and describe the experience of the proposed person who will be responsible for working labor relations issues within the Contractor's company, including that person's experience in negotiating collective bargaining agreements, and resolving grievances. Where will that person be located and what level of autonomy will that person possess. Also, describe who will be responsible for working labor relations issues for each location that work is being performed.
4. Describe the methods the Contractor's company's plan to use to promote and maintain harmonious labor relations during contract performance.

C. FORMAT:

The Contractor's format is acceptable traceable to the content listed above.

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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)
Notification of Potential Labor Dispute and Contingency Strike Plan	12/01/2011	MGMT-08	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

The notification of Potential Labor Dispute and Contingency Strike Plan will be used by the NASA/Contracting Officer and Contractor Industrial Relations Officer to facilitate the coordination of activities between the Contractor and the affected NASA Operational Directorates, to ensure that necessary steps are taken to prepare for any potential strike situations, and to prevent the disruption of work.

5. DRD Category: *(check one)*

- ☐ Technical
- ☒ Administrative
- ☐ SR&QA

6. References *(Optional)*

FAR 52.222-1: Notice to the Government of Labor Disputes

7. Interrelationships *(e.g., with other DRDs)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Notification shall describe the situation that has the potential of impacting the contract, and provide the corrective actions initiated. The Notification of Potential Labor Dispute and Contingency Strike Plan are required for the Prime and any subcontractors supporting this contract.

B. CONTENT:

The Notification of Potential Labor Dispute shall describe the situation that has the potential of impacting the timely performance of the contract. It should also provide the planned negotiation dates, with organized labor, and describe other corrective actions initiated. Notification should be made prior to the expiration of CBA, prior to any significant changes to existing working conditions or pay practices, or any situation that could impact the performance of the contract through labor unrest. The Contingency Strike Plan shall describe the Contractor's plan for assuring the timely performance of the work under this contract during a strike or work stoppage situation. As a minimum, contents should include:

a. Information on implementation of the strike plan
b. A pre-strike checklist for managers and supervisors
c. A description of how critical work will be performed
d. An organization chart of the strike committee membership
e. Phone numbers of key management personnel and standards of conduct policies during the strike

C. FORMAT:

Contractor format is acceptable

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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)
Total Compensation Plan	12/01/2011	MGMT-09	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

To describe the Offeror's approach to providing the quality of professional services needed for contract performance.

5. DRD Category: *(check one)*

- ☐ Technical
- ☒ Administrative
- ☐ SR&QA

6. References *(Optional)*

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"

7. Interrelationships *(e.g., with other DRDs)*

MGMT-04 Staffing and Critical Skills Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE

Total compensation plan(s) shall identify and discuss wages, salaries, and fringe benefits for professional employees and non-exempt service employees for both the Prime team members and all subcontractors meeting the thresholds of NFS 1852.231-71(d). It shall address the requirements of the Service Contract Act and commit to the compliance of all wage determinations. The compensation templates shall be provided in the cost/price volume. Upon approval, the Total Compensation Plan(s) will become a part of the contract as Attachment J-13.

B. CONTENT:

1. Provide a discussion of the qualification criteria (education and experience) that is normally associated with the labor classifications identified. Explain how the Offeror's proposed compensation plan recognizes the differences in skills and complexities of varied disciplines as well as job difficulty.
2. Provide the Offeror's company's salary range/wage information for each labor classification identified. Salary ranges will also reflect the impact of employment tenure. Describe planned escalations for exempt and non-exempt employees.
3. Discuss the Offeror's company's fringe benefit policies and practices. Indicate any differences in fringe benefits exist among working groups. For example, address the Offeror's company policy on short and long term disability insurance, and life insurance, including information on the types of benefits offered, and the company share of premium costs.
4. Describe the Offeror'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. Also, include the Offeror's policy on assuming health insurance coverage for incumbent employees, including pre-existing medical conditions.
5. Describe the Offeror's policy on retirement/savings plans, including how much the company provides towards the plan and information on vesting. Address escalation and employer/employee cost sharing ratios.
6. Discuss other salary payment policies, such as cost-of-living adjustments, relocation expenses, and reduction in force, including severance pay, overtime pay, holiday pay, and any other premium pay anticipated.
7. If uncompensated overtime is proposed, it shall be in accordance with FAR 52.237-10, "Identification of Uncompensated Overtime". If proposed, the Offeror 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 Offeror shall provide a copy of the company's policy for uncompensated overtime with proposal.
8. The Offeror shall discuss the policy for dealing with seniority and recognition of seniority if incumbents are hired. The discussion shall include a statement regarding the Offeror's intent with respect to paying incumbent employees the amount they are currently earning with salaries/wages and fringe benefits, including accrued leave.
9. The Offeror shall describe incentives to motivate and reward job performance, and to encourage the retention of personnel. The Offeror shall describe the policies, procedures, and experience related to these incentives.
10. If the Offeror or other divisions of the parent company are performing a Government contract employing skills of a comparable professional level in the local area, or at the same site of performance as this proposed contract, any differences in the Total Compensation Plan (TCP) for the proposed effort, and other contracts will be identified. The rationale for these differences shall be explained.
11. 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 Offeror shall describe its commitment for compliance with the Service Contract Act and all wage determinations.
12. Provide a discussion of prior experience with this proposed TCP, including such information as the length of time the Offeror

(or other elements of the company) have used the TCP and the turnover experienced compared to the National Average.

C. FORMAT:
Contractor's format is acceptable traceable to the content listed above.

D. MAINTENANCE:
See Data Requirements List (DRL).

E. DISTRIBUTION:
Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	MGMT-10	NNJ13HA01C

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 EA/KA Directorates 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	Contract Clause H.16 EXTERNAL CUSTOMER EFFORT MGMT-03 Contract Management Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The External Customer Plan (ECP) describes the Contractor's multi-year approach for identifying, attracting, and retaining external customers for EA and KA. The intent of the plan is to allow the contractor to market and use EA/KA Directorate facilities, equipment, contractor personnel and limited NASA capabilities on a non-interference basis, for the purposes of retaining critical skills and off-setting the Government's cost of maintaining such capabilities.

Execution of ECP agreements shall be in accordance with Clause H.16 External Customer Effort. 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 External Customer Status, 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.
2. Directorate Capabilities, Constraints, and Policies:
   - i. Identify and evaluate internal capabilities not generally available from the commercial market and unique to NASA.
   - ii. Provide a comprehensive checklist of all constraints and policies the Customer must meet in order to operate in the EA/KA facilities.
   - iii. Provide a comprehensive process that reviews the potential customer's requirements against Directorates capabilities, constraints, and policies.
   - iv. Describe plans to resolve issues between customer requirements and Directorate schedules, capabilities, constraints, and policies.

   (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)
3. Procedures:
   - i. Identify and describe procedures for reducing/eliminating conflict between government and non-government work.
   - ii. Identify and describe procedures for coordinating user requests for new services within pre-existing commitments to ensure compatibility and fulfillment with existing resources.
   - iii. Identify and describe procedures for protecting data between companies and potential Organizational Conflicts of Interest.
   - iv. Identify schedules and metrics for staying within the plan.
4. Costs:
   - i. Describe the Contractor's plan to assist NASA in establishing a price list for use of the Directorates' facilities and capabilities. Identify all factors in determining the costs (e.g., equipment maintenance and replacement costs).
   - ii. Describe the 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.

iii. Provide the definition of a "completed" or "booked" External Customer Agreement.

iv. Identify cost avoidance targets.

5. Recruiting:
   i. Identifying Potential Customers: Describe plans for identifying potential customers, both initially and long-term.
   ii. Marketing EA and KA Resources: Describe plans for marketing to potential customers, and the estimated associated costs.
6. 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).
7. Implementation:
   i. Describe the 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.
8. Risks and other relevant data
   i. Identify risks and mitigation strategies associated with the approach identified in the plan.
   ii. Include other relevant data identified by the contractor.
9. 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:
      a. Amount of work expected
      b. Anticipated activities
      c. Timeframe/ Length of use
      d. Level and type of support by the contractor
      e. Estimated support (including cost) of the contractor
      f. Facility equipment and infrastructure required
      g. Additional details not otherwise addressed (e.g., operations, setup, teardown, returning systems to neutral state)

C. FORMAT:

Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). The ECP 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:

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)
Technology, Innovations, and Process Improvement Plan	12/18/2011	MGMT-11	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
To identify and promote Technology, Innovations, and Process Improvements that will improve EA and KA products, processes, and operations.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
	MGMT-03 Contract Management Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The JETS contractor team shall promote infusion of technology and innovations into EA and KA products, processes and operations. The Contractor shall identify and propose innovative techniques and methods that when implemented, would result in improved quality of products, processes or operations while maintaining or reducing costs to the Engineering and ARES Directorates. The proposals must include sufficient rationale to demonstrate the feasibility and effectiveness of the Contractor's proposal including an analysis of benefits and risks. Proposed changes to processes should not be limited to those currently used or described in task orders.

Upon approval, the plan will become a part of the contract as Attachment J-21. Implementation of proposed innovations and/or improvements and any detailed assessments of such proposals will be authorized on a Task Order under Section 2 of the SOW.

B. CONTENT:

The Technology, Innovation, and Process Improvement (TIPI) plan shall include at the minimum:

- a process for identifying new technologies, innovations, best practices and process improvements
- a process for continuous assessment and reprioritization of opportunities for innovations/improvement
- a process for engaging external resources with the JETS contractor team and beyond
- a process for targeting areas for improvement
- a process for developing, evaluating and submitting TIPI proposals to NASA

A TIPI status, delivered as part of the Contract Management Report, shall include as a minimum:

- an estimate of cost savings, and other benefit to the Government, for implemented innovations/improvements, realized during the current evaluation period, and three prior evaluation periods
- a status of the implementation of approved innovations/improvements
- a summary of new proposals
- a listing of EA and KA products, processes and operations that the Contractor considers to be a candidate for improvement/innovation, including rationale for each identified candidate
- a status of the Contractor's ongoing efforts to identify technologies, innovations and process improvements

C. FORMAT:

Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System. The TIPI Plan shall be delivered in native format and shall 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:

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	12/01/2011	MGMT-12	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

Used when the contractor proposes to resolve an organizational conflict of interest by mitigation.

5. DRD Category: *(check one)*

- ☐ Technical
- ☒ Administrative
- ☐ SR&QA

6. References *(Optional)*

FAR Subpart 9.5, Organizational and Consultant Conflicts of Interest

7. Interrelationships *(e.g., with other DRDs)*

H.42 Mitigation of Organizational Conflict of Interest

H.43 Disclosure of Organizational Conflict of Interest after Contract Award

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Organizational Conflict of Interest (OCI) Mitigation Plan describes the contractor‘s approach to mitigate potential OCI issues created by the performance of work under the Contract.

B. CONTENT:

The Organizational Conflict of Interest (OCI) Mitigation Plan shall:

1. Demonstrate an understanding of (i) OCI principles and (ii) 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 resolve 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:
   i. a description of the conflict,
   ii. the plan for resolving the conflict, and
   iii. 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.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

C. FORMAT:
The Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). The Organizational Conflict of Interest Mitigation Plan shall be delivered in native format and shall be compatible with JSCs standard software loads.

D. MAINTENANCE:
See Data Requirements List (DRL).

E. DISTRIBUTION:
Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	MGMT-13	NNJ13HA01C

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. SCOPE:

To describe the Contractor's planned approach to meeting Small Business Subcontracting.

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. Qualifications of Small Businesses and Small Business personnel
3. Small Business Category and percentage of the proposal assigned for each subcontractor
4. Management approach to subcontracting with small disadvantaged, Women-owned, HUB Zone, Veteran Owned, and Service Disabled Veteran Owned businesses, and MSIs.
5. For future subcontracting: Area of work, percentage of contract that will be subcontracted, potential subcontractors and their small business subcategory classification.
6. For future subcontracting: Management strategy that will be used to assure subcontractors are qualified to perform the assigned contract scope.

C. FORMAT:

The Contractor's plan format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System. Small Business Subcontracting Plan 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:

FAR 52.219-9 Small Business Subcontracting
NFS 1852.219.75 Reporting Requirements

G. 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 as part of DRD MGMT-03, Contract Management Report.

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	12/01/2011	MGMT-14	NNJ13HA01C

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 close out the contract	☐ 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. 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:

7. Implementation Strategy
8. Task description and schedule
9. Staffing Profile
10. Cost Estimate
11. Plan for delivery of final documentation, including electronic copies of all contract files

C. FORMAT:

The Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	NNJ13HA01C

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 reporting requirements including, but not limited, to those documented in OMB Circular A-11. Accurate and complete data submissions are to be made in a manner consistent with the reporting structure, and with the timeframes established for the JSC.

Additionally, 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	12/01/2011	IT-02	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

To ensure that IT security reporting requirements are met for all IT systems utilized during work associated with TOs on this contract.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

NFS 1852.204-76: Security Requirements for Unclassified IT Resources
NPR 2810.1A: Security of IT.
OMB Circular A-130: Management of Federal Information Resources

7. Interrelationships *(e.g., with other DRDs)*

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 reference in OMB Circular A-130 (Security of Information Technology), and NPR2810.1A (Security of Information Technology).

IT SECURITY PLAN:

The Contractor shall have a line manager who is responsible for the contractor's systems in accordance with the definitions set forth in NPR2810.1. 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.

IT SECURITY AWARENESS TRAINING:

Per NASA requirements, employees subject to this contract shall complete the NASA provided IT security awareness training annually. Contractor provided IT security awareness training may be substituted by must be approved annually by NASA as a substitute. When substituted, per NPR 2810.1, 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.

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 NASA Procurement Information Circular (PIC) 02-04, NPR 2810.1, and NPR 1600.1 on position risk.

SYSTEM ADMINISTRATOR SECURITY CERTIFICATION REPORT:

A list of lead system administrators shall be provided annually. This list will be used to ensure the contract, as outlined in PN 04-03, has met the system administrator's certification requirements.

C. FORMAT:

The product shall be in a Microsoft Office compatible format.

D. MAINTENANCE:

See Data Requirements List (DRL).

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.

F. APPLICABLE DOCUMENTS:

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)
NASA Contractor Financial Management Report	12/07/2011	BP-01	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
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 NF 533 must be reconcilable to the NF 533.	☐ Technical ☒ Administrative ☐ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
NPR 9501.2E: NASA Contractor Financial Management Reporting	

8. Preparation Information *(Include complete instructions for document preparation)*

NASA Form 533 (NF533) Reports:

<u>The NF533 reports provide data necessary for the following</u>:

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. The contractor shall provide several variations of the NF533; the format and variations are provided in Attachment 1.

The NF533M and NF533Q reports 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.

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.

Examples of accrual accounting for common cost elements reported on the NF533 are below:

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

Cost Elements	Definitions
Labor	Reported to NASA as hours are incurred. Labor is reported in the following classifications: • Direct Regular Labor Hours • Direct Overtime Hours • Total Direct Hours • Indirect Regular Hours • Indirect Overtime Hours • Total Indirect Hours • Total Hours • Onsite WYEs/EPs (direct and indirect) • Offsite WYEs/EPs (direct and indirect) • Total WYEs/EPs (direct and indirect)
Equipment & Material (COTS)	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.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

The chart below describes the data elements to be included in the NF533M:

Data Element Name	**Description**
Reporting Category (RC)	Task Order, Work Breakdown Structure
Cost Incurred for Month (7a)	Prior month actual cost incurred for each RC (column 7a on NF533)
HR/WYE Incurred for Month (7a)	Prior month actual HR/WYE incurred for each RC (column 7a on NF533)
Contract prior month planned cost (7b)	Planned cost for prior month for each RC (column 7b on NF533)
Contract Government Fiscal Year Costs to Date	Actual costs incurred from beginning of the fiscal year to prior month actual costs for each RC (located between columns 7b and 7c on the NF533)
Contract ITD cost (7c)	Contract ITD cost for each RC (column 7c on NF533)
Contract planned ITD cost (7d)	Contract planned ITD cost for each RC (column 7d on 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)
Next month estimated cost (8b)	Estimated cost for next month for each RC (column 8b on NF533)
Balance of Contract	Balance of contract for the remaining estimate to complete for each RC (column 8c on NF533)
Government Fiscal Year Estimate at Completion	Estimated cost at completion for the current fiscal year (located between columns 8c and 9a on the NF533)
Contractor Estimate	Contractor estimate for the total estimate to complete entire scope of contract for each RC (column 9a on NF533)
Contract Value	Contract value based upon contract modifications for each RC (column 9c on NF533)
Unfilled orders outstanding	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 a actual Reporting Category or a Sub-Reporting Category Line Item Number

A Reporting Category (RC) correlates to a task order (TO), 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), containing detailed cost elements that add up to a RC. The CLIN levels will need to be reported as requested in the Supplemental Reports (see Attachments #2 - #5). For certain task orders, it may be necessary to create sub-CLIN levels; these will also need to be reported as requested in the Supplemental Reports. **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.**

Column 7b (planned cost incurred/hours worked for the month) and 7d (cumulative 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 and 7d. Columns 7b and 7d represent the legally binding contract negotiated baseline plan plus all authorized changes.

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.

Uncompensated overtime hours worked should be reported on NF533 reports as a separate line item, in the footnotes, or in supplemental reporting.

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 stated earlier in this DRD.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

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 no later than the prior business 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.

If requested, the contractor shall also submit a flat file of the data contained in the NF533M report and/or Supplemental on the 10th calendar day of the month. Specific format and requirements are detailed in attachment #6. The file will be compatible for downloading into SAP, NASA's financial reporting system.

An initial NF533 report is required in the NF533Q format to be used as a baseline for the life of the contract (see Attachment #1 for format). The initial (baseline) NF533Q report shall be submitted by the contractor within 15 calendar days after the contract transition/phase in period has begun. 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.

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.

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.

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 NF 533 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 NF 533 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.

Supplemental Financial Status Reports and Variance Reports

The contractor shall submit the supplemental reports listed below as well as those detailed in attachment #5. Initial supplemental reports are due within 30 days after the incurrence of cost; thereafter, they are due by the 10th calendar day of the month in conjunction with the NF533M report unless otherwise noted. These supplemental reports should report all data at the CLIN level unless otherwise noted. **The contractor is required to coordinate with the NASA Resource Analyst assigned to the contract in order to establish and maintain the CLIN and sub-CLIN levels the contractor shall use to comply with these requirements.**

1. Supplemental Management and Administration Cost (MAC) Report (See Attachment #2)
2. Supplemental Indefinite-Delivery-Indefinite-Quantity (IDIQ) Report (See Attachment #3)
3. Supplemental Contract Summary Report (See Attachment #4)

The contractor shall also submit variance reports when variances exceed +/-**5**% as described below. Variance reports are due by the 15th calendar day of the month.

Report	Variance Analysis Requirement
NF 533M Contract Summary Report	Column 7A current month to 8A previous month
NF 533M MAC Report	Columns 9A and 9B
NF 533M IDIQ Report	Columns 9A and 9B
Supplemental MAC Report	Columns 9A & 9B per CLIN Column 7A current month to 8A previous month per CLIN
Supplemental IDIQ Report	Columns 9A & 9B per CLIN Column 7A current month to 8A previous month per CLIN

Attachment #1 – NF 533M Report

The Contractor shall submit the following NF 533M Reports:

NF 533M Contract Summary Report
NF 533M Indefinite-Delivery-Indefinite-Quantity (IDIQ) Report
NF 533M Management and Administration Cost (MAC) Report

The Contract Summary Report should be a roll-up of the IDIQ Report and the MAC Report. All three reports should follow the format below, but can have minor changes if approved by the NASA Resources Analyst and CO. The contractor should work with the NASA Resource Analyst to determine which Cost Elements will be needed.

To: NASA Johnson Space Center From: CONTRACTOR	1. JSC Engineering Technology and Sciences Mod: Contract Summary	3. Contract Value Cost: Fee: 4. Fund Limitation:
General Manager Date	2. Report Month Ending: Operating Days	5. Billing Billed: Rec'd:

6. Cost Element	Costs Incurred/Hours Worked					Estimated Costs to Complete			Government	Estimated Final Costs/Hrs		Unfilled
	Month		GFY	Cum to Date		Curr Mth	Next Mth	Balance of	Fiscal	Contractor	Contract	Orders
	Actual	Plan	Costs	Actuals	Planned	Est	Est	Contract	Year	Estimate	Value	Outstanding
	7a	7b	To Date	7c	7d	8a	8b	8c	EAC	9a	9b	10
Cost Element 1												
Cost Element 2												
Cost Element 3												
.												
.												
.												
.												
.												
.												
.												
.												
.												
.												
.												
Cost Element x												
Phase-In Costs												
Total Cost												
Fee												
Total Cost plus Fee												
Onsite WYEs												
Offsite WYEs												

Footnotes: (explain prior period adjustments, uncompensated overtime, etc).

Attachment #2 – Supplemental Management and Administrative Cost Report

Per the Statement of Work section 1.1.2, Financial Management, the contractor is required to develop and implement a method of tracking and applying all costs associated with the implementation of work requested in the SOW Section 1. These costs will be known as "Management and Administration Costs" (MACs). The contractor shall submit a Supplemental Management and Administration Cost (SMAC) Report each month, which should follow the format below. There can be minor changes if approved by the NASA Resources/Program Analyst and CO. Please note that this report is submitted by task order, with reporting requirements at the CLIN and, where appropriate, the Sub-CLIN level.

Monthly SMAC Report			**DO/TO** _____						**Contract Value:**_____			
To: National Aeronautics and Space Administration			**From: CONTRACTOR**									
	Cost Incurred					**Estimate to Complete**			**Est. Final Cost**			
	Month			**Cum to Date**								
DO/TO_____	**Actual 7a**	**Planned 7b**	**GFY Costs to Date**	**Actual 7c**	**Planned 7d**	**Current Month 8a**	**Next Month 8b**	**Balance of Contract 8c**	**Government Fiscal Year EAC**	**Contractor Estimate 9a**	**Contract Value 9b**	**Unfilled Orders Outstanding 10**
DO/TO _____ Summary												
Total Cost plus Fee												
DO/TO _____, CLIN _____, SubCLIN_____												
Total Cost plus Fee												
DO/TO _____, CLIN _____, SubCLIN_____												
Total Cost plus Fee												
DO/TO _____, CLIN _____, SubCLIN_____												
Total Cost plus Fee												

Additionally, the SMAC Report should include a summary of all MACs by task order, CLIN, and SubCLIN (where appropriate) in the following format:

Monthly SMAC Report			**Summary**						**Contract Value:**_____			
To: National Aeronautics and Space Administration			**From: CONTRACTOR**									
	Cost Incurred					**Estimate to Complete**			**Est. Final Cost**			
	Month			**Cum to Date**								
	Actual 7a	**Planned 7b**	**GFY Costs to Date**	**Actual 7c**	**Planned 7d**	**Current Month 8a**	**Next Month 8b**	**Balance of Contract 8c**	**Government Fiscal Year EAC**	**Contractor Estimate 9a**	**Contract Value 9b**	**Unfilled Orders Outstanding 10**
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
DO/TO _____, CLIN _____, SubCLIN_____												
Total												

The totals from the SMAC Summary should match the totals from the NF533M MAC Report.

Attachment #2 – Supplemental Management and Administrative Cost Report

Finally, the SMAC Report should include a summary of all MACs broken out by the Statement of Work Section 1 WBS structure.

Monthly SMAC Report			Summary - By SOW WBS						Contract Value:_____			
To: National Aeronautics and Space Administration			**From: CONTRACTOR**									
	Cost Incurred					Estimate to Complete			Est. Final Cost			Unfilled Orders Outstanding 10
	Month			Cum to Date								
WBS Costs	Actual 7a	Planned 7b	GFY Costs to Date	Actual 7c	Planned 7d	Current Month 8a	Next Month 8b	Balance of Contract 8c	Government Fiscal Year EAC	Contractor Estimate 9a	Contract Value 9b	
1.1.1 Contract Management Costs												
1.1.2 Financial Management Costs												
1.1.3 Property Management Costs												
1.1.4 Data Management Costs												
1.1.5 Procurement Costs												
1.2.1 Safety and Health Costs												
1.2.2 Environmental Costs												
1.2.3 Quality Management Costs												
1.2.4 Configuration Management Costs												
Total												

Attachment #3 – Supplemental Indefinite Delivery Indefinite Quantity Report

The Contractor shall submit a Supplemental Indefinite-Delivery-Indefinite-Quantity (SIDIQ) Report. This report should follow the format below, but can have minor changes if approved by the NASA Resources Analyst and CO. The contractor should work with the NASA Resource Analyst to determine which Cost Elements will be needed. Please note that this report is submitted by Task Order, with reporting requirements at the CLIN and, where appropriate, the Sub-CLIN level.

Monthly Supplemental IDIQ Report				**DO/TO _____**						**Contract Value:_____**			
To: National Aeronautics and Space Administration				**From: CONTRACTOR**									
		Cost Incurred/Hours Worked					**Estimate to Complete**			**Est. Final Cost/Hours**			**Unfilled Orders Outstanding 10**
DO/TO_____		**Month**			**Cum to Date**								
		Actual 7a	**Planned 7b**	**GFY Costs to Date**	**Actual 7c**	**Planned 7d**	**Current Month 8a**	**Next Month 8b**	**Balance of Contract 8c**	**Government Fiscal Year EAC**	**Contractor Estimate 9a**	**Contract Value 9b**	
DO/TO _____ Summary													
	Cost Element 1												
	Cost Element 2												
	Cost Element 3												
	Total Cost												
	Fee												
	Total Cost plus Fee												
	Onsite WYEs												
	Offsite WYEs												
DO/TO _____, CLIN _____, SubCLIN_____													
	Cost Element 1												
	Cost Element 2												
	Cost Element 3												
	Total Cost												
	Fee												
	Total Cost plus Fee												
	Onsite WYEs												
	Offsite WYEs												
DO/TO _____, CLIN _____, SubCLIN_____													
	Cost Element 1												
	Cost Element 2												
	Cost Element 3												
	Total Cost												
	Fee												
	Total Cost plus Fee												
	Onsite WYEs												
	Offsite WYEs												

Attachment #3 – Supplemental Indefinite Delivery Indefinite Quantity Report

Additionally, the SIDIQ Report should include a summary of all IDIQ costs by task order, CLIN, and Sub CLIN (where appropriate) in the following format:

Monthly Supplemental IDIQ Report			**Summary**						**Contract Value:**_____			
To: National Aeronautics and Space Administration			**From: CONTRACTOR**									
	Cost Incurred					**Estimate to Complete**			**Est. Final Cost**			**Unfilled Orders Outstanding 10**
	Month			**Cum to Date**		**Current Month 8a**	**Next Month 8b**	**Balance of Contract 8c**	**Government Fiscal Year EAC**	**Contractor Estimate 9a**	**Contract Value 9b**	
	Actual 7a	**Planned 7b**	**GFY Costs to Date**	**Actual 7c**	**Planned 7d**							
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
Total												

The totals from the SIDIQ Summary should match the totals from the NF533M IDIQ Report.

Attachment #4 – Supplemental Contract Summary Report

The Contractor shall submit a Supplemental Contract Summary Report. The Supplemental Contract Summary Report should be a roll-up of the SIDIQ Report and the SMAC Report. The report should follow the format below, but can have minor changes if approved by the NASA Resources Analyst and CO (these changes should mirror any changes made to the SIDIQ and SMAC Reports). The Supplemental Contract Summary Report should be submitted by task order, with reporting requirements at the CLIN and, where appropriate, the Sub-CLIN level.

Monthly Supplemental Contract Summary Report				**DO/TO** _____						**Contract Value:**_____			
To: National Aeronautics and Space Administration				**From: CONTRACTOR**									
		Cost Incurred/Hours Worked					**Estimate to Complete**			**Est. Final Cost/Hours**			
DO/TO_____		**Month**			**Cum to Date**								**Unfilled Orders Outstanding 10**
		Actual 7a	**Planned 7b**	**GFY Costs to Date**	**Actual 7c**	**Planned 7d**	**Current Month 8a**	**Next Month 8b**	**Balance of Contract 8c**	**Government Fiscal Year EAC**	**Contractor Estimate 9a**	**Contract Value 9b**	
DO/TO _____ Summary													
	Cost Element 1												
	Cost Element 2												
	Cost Element 3												
	Total Cost												
	Fee												
	Mgmt and Admin. Costs												
	Total Cost plus Fee												
	Onsite WYEs												
	Offsite WYEs												
DO/TO _____, CLIN _____, SubCLIN_____													
	Cost Element 1												
	Cost Element 2												
	Cost Element 3												
	Total Cost												
	Fee												
	Mgmt and Admin. Costs												
	Total Cost plus Fee												
	Onsite WYEs												
	Offsite WYEs												
DO/TO _____, CLIN _____, SubCLIN_____													
	Cost Element 1												
	Cost Element 2												
	Cost Element 3												
	Total Cost												
	Fee												
	Mgmt and Admin. Costs												
	Total Cost plus Fee												
	Onsite WYEs												
	Offsite WYEs												

Attachment #4 – Supplemental Contract Summary Report

Additionally, the Supplemental Contract Summary Report should include a summary of all costs by task order, CLIN, and SubCLIN (where appropriate) in the following format:

Monthly Supplemental Contract Summary Report			Summary						Contract Value:_____			
To: National Aeronautics and Space Administration			**From: CONTRACTOR**									
	Cost Incurred					Estimate to Complete			Est. Final Cost			Unfilled Orders Outstanding 10
	Month			Cum to Date								
	Actual 7a	Planned 7b	GFY Costs to Date	Actual 7c	Planned 7d	Current Month 8a	Next Month 8b	Balance of Contract 8c	Government Fiscal Year EAC	Contractor Estimate 9a	Contract Value 9b	
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
DO/TO____, CLIN____, SubCLIN____												
Total												

The totals from the Supplemental Contract Summary Report should match the totals from the NF533M Contract Summary Report.

Attachment #5 – Additional Supplemental Reports

Annual Accounting Calendar: The Contractor's accounting calendar shall be provided in electronic format to the LE resource analyst and LF6 Cost Accountant within 30 calendar days after the contract transition/phase-in period has begun. An updated accounting calendar shall be submitted annually thereafter in conjunction with the delivery of the September NF533M.

Contract Year	Month, Calendar Year	Accounting Period Start Date	Accounting Period End Date	Business Days in Accounting Period	Business Hours in Accounting Period

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

Unfilled Orders Report: Upon request, but at least quarterly, the Contractor shall submit a report 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%

Subcontractor Cost Breakout Report: When subcontractor costs are greater than $2 million dollars per fiscal year per task order, the contractor shall submit a report detailing the subcontractor costs. The contractor shall provide this report for each requested Reporting Category and CLIN, and should include the various cost elements listed in the format and their costs and estimates. Other data elements may be requested on the task order. The following format shall be used for this report.

Reporting Category/ CLIN	Cost Element	Month Actual	Month Plan	GFY Cost to Date	Cum Costs to Date	Next Month Estimate	Two Month Estimate	GFY EAC	Total EAC
	Labor								
	Travel/Training								
	Equipment & Materials								
	Other (specify)								
	Total								

Attachment #5 – Additional Supplemental Reports

Annual Economic Impact Assessment: The contractor shall submit answers to the following questions to the LE 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.

If the economic impact questions change or additional detail is needed, the contractor shall have 10 business days to answer new questions from the date that the new questions are submitted to the contractor by the LE resource analyst.

What is the total average headcount for this contract in the prior fiscal year? (Please include in-directs and an estimate for your major subcontractors.)

For the total workforce indicated in the question above, approximately how many:

1. Work in the local Clear Lake-Houston area, including JSC? (JSC includes Sonny Carter Training Facility, and Ellington Field.)
2. Work outside the local Clear Lake-Houston area, but within the State of Texas?
3. Work in the Las Cruces, NM area, including WSTF?

What is the approximate dollar value of goods and services (including labor) purchased:

1. In the local Clear Lake-Houston area under this contract during the prior fiscal year?
2. Outside the local Clear Lake-Houston area but within the State of Texas?
3. In the Las Cruces, NM area?

Attachment #6 – Flat File

Flat File Requirements

In addition to submitting the NF533M in a hardcopy format, the Contractor shall submit the NF533 electronically by the same due date as the hardcopy. The data shall be submitted via email using the Government prescribed flat file format (see attached Agency Defined File Format for an example of the layout details) and shall include the following header information from the hardcopy.

Data Element	Description
Contract Number	NASA assigned contract number
Modification Number	Latest definitive Modification Number
Accrual Date	Date the data was generated for
Report Period End Date	Period ending date of the NF533
Operating Days	Number of operating days for the current NF533
Date Received/Submitted	Date the report is submitted
CCR Format	Monthly (NF533M) or Quarterly (NF533Q)
Cost Unit of Measure	Unit of measure used to report cost on the NF533 report
HR/WYE Unit of Measure	Unit of measure used to report Hours/Work Year Equivalents (WYEs) on the NF533 report
Authorized Contractor Representative	Name of Contractor Approving Officer
Authorized Contractor Representative Date Signed	Date the NF533 is approved and signed by the authorized Contractor Representative
Monthly Grand Total Cost Incurred (7a)	Grand Total Actual Monthly cost for the prior month (column 7a on the NF533)
Monthly Grand Total HR/WYE (7a)	Grand Total Actual monthly hours/WYEs for the prior month (column 7a on the NF533)
Monthly Grand Total Cost Planned (7b)	Prior month planned cost (column 7b on the NF533)
Grand Total Cost Incurred ITD (7c)	Grand total contract cost from Inception to Date (ITD) (column 7c on the NF533)
Grand Total Planned Cost (7d)	Grand total planned contract cost (column 7d on the NF533)
Grand Total Estimated Cost (8a)	Grand total current month cost estimate (column 8a on the NF533)

Grand Total Estimated HR/WYE (8a)	Grand total current month HR/WYE estimate (column 8a on the NF533)
Grand Total Next Month Estimated Cost (8b)	Grand total next month cost estimate (column 8b on the NF533)
Grand Total Balance of Contract (8c)	Contract Balance for the remaining estimate to complete (column 8c on the NF533)
Grand Total Contractor Estimate (9a)	Contractor estimate to complete entire scope of contract (column 9a on the NF533)
Grand Total Contract Value (9b)	Contractor distribution of contract value by the reporting categories (column 9b on the NF533)
Grand Total Unfilled Orders Outstanding (10)	Unfilled order outstanding at the end of the reporting period (column 10 on the NF533)

The flat file shall be saved as a text file with no extension (do not include .txt after the file name) and named in strict accordance with the specific format described below.

File names must be provided in a specific format. Each file name will begin with the SAP 2 Character center abbreviation listed below. The contract number and date will be included in the file name as well. Below is a sample file name.

JOCFPS001_NNJ0000001_yyyy_mm_dd

SAP 2 Charter Center Abbreviations

Headquarters	HQ		Dryden	DR
Marshall	MA		Goddard	GO
Ames	AM		Stennis	ST
Glenn	GL		Johnson	JO
Langley	LA		Kennedy	KE

Example File Format

Header (Non-Repeating Segment)

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	St Pos	EndPos	Len	*Format*
HEADER:									
Record Type	Used by eGate to determine record type	'HD' for Header	Required	Required	RECORD_TYPE	1	2	2	*CHAR*
Contract Number	Contract Number (1b)	Header field—submitted with CONTRACTOR data or defaulted by interface or extension	Required	Required	CONTRACT_NUMBER	3	12	10	*CHAR*
	Latest definitive Modification Number(CR8197)				MOD_NUMBER	13	18	6	*CHAR*
Accrual Date	Date the data was generated for. Used by SAP as part of Oracle table key	Accrual Date. MM01YYYY, where MM is the Accrual Month and YYYY is the fiscal year	Required	Required	ACCRUAL_DATE	19	26	8	*DATE MM01YYYY*
Report Period End Date	Report Period End Date is a date(2)	Header field—submitted with CONTRACTOR data or defaulted by interface or extension	Required	Required	REP_END_DATE	27	34	8	*DATE*
Operating Days	Operating days (2).	Header field—submitted with CONTRACTOR data	Required	Optional unless Required by contract	OPER_DAYS	35	40	6	*NUMERIC*
Date Received	Date Received (1d)	System Date upon which the cost data is loaded into the CCR Extension	Required	Required	DATE_REC	41	48	8	*DATE*
CCR Format	'M' for Monthly and 'Q' for Quarterly (SIR2047)	Submitted with CONTRACTOR data	Required	Required	CCR_FORMAT	49	49	1	*CHAR*

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	St Pos	EndPos	Len	*Format*
Cost Unit of Measure	Cost Unit of Measure (SIR2047)	Submitted with CONTRACTOR data	Required	Required	COST_UOM	50	51	2	*CHAR*
HR/WYE Unit of Measure	Hour/Work-Year-Equivalent Unit of Measure (SIR2047)	Submitted with CONTRACTOR data	Required	Required	HR_WYE_UOM	52	53	2	*CHAR*
	Authorized Contractor Representative – Name of Contractor Approving Officer (CR 8197)				AUTH_SIGNATURE	54	78	25	*CHAR*
	Authorized Contractor Representative Date Signed – Date CCR is approved/signed by authorized contractor representative(CR 8197)				AUTH_SIGNATURE_DATE	79	86	8	*DATE MMDDYYYY*
Grand Total Cost Incurred Month (7a)	The Grand Total Contract Prior Month Actual Dollars Column 7a reports actual costs for the prior month.	Submitted with CONTRACTOR data	Required.	Optional. Only required if lower detailed line item data is submitted in monthly batch file.	GT_COST_INCUR_MONTH	87	99	13	*CURRENCY(2)*
Grand Total HR/WYE (7a)	The Grand Total Contract Prior Month Actual Hours Column 7a reports actual HR or WYE for the prior month.	Submitted with CONTRACTOR data	Required if detailed line item data is submitted in monthly batch file.	Required if detailed line item data is submitted in monthly batch file.	GT_HRWYE_PRIOR_MONTH	100	109	10	*NUMERIC(1)*
	The Grand Total Contract Prior Month Planned Dollars Column (7b) reports planned costs for				GT_COST_PLANNED_MONTH	110	122	13	*CURRENCY (2)*

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	St Pos	EndPos	Len	*Format*
	the prior month. (CR8197)								
Grand Total Cost Incurred ITD (7c)	The Grand Total Contract Cost Dollars Column 7c which represents Contract Cost Inception to Date	Submitted with CONTRACTOR data	Required. Does not require detailed line item data if provided from Cost Incurred Month (7a)	Required if detailed line item data is provided for this column	GT_ITD_COST	123	135	13	*CURRENCY (2)*
	Grand Total Contract Planned Cost Dollars Column (7d) which represents Planned Contract Cost Inception to Date(CR 8197)				GT_COST_PLANNED_ITD	136	148	13	*CURRENCY (2)*
Grand Total Estimated Cost (8a)	The Grand Total Contract Estimated Cost for first upcoming month, or Current Month Estimate for cost.	Submitted with CONTRACTOR data	Required	Required if detailed line item data is provided for this column	GT_EST_COST	149	161	13	*CURRENCY (2)*
Grand Total HR/WYE (8a)	The Grand Total Contract Estimated Hours for first upcoming month, or Current Month Estimate for HR/WYE.	Submitted with CONTRACTOR data	Required if detailed line item data is provided for this column	Required if detailed line item data is provided for this column	GT_HRWYE_FIRST_MONTH	162	171	10	*NUMERIC (1)*
Grand Total Next Month Estimated Cost (8b)	The Grand Total Contract Estimated Cost for second upcoming month or Next Month Estimate for cost.	Submitted with CONTRACTOR data	Required if detailed line item data is provided for this column	Required if detailed line item data is provided for this column	GT_NEXT_MONTH_EST	172	184	13	*CURRENCY (2)*
	Grand Total Balance of Contract for the remaining estimate to				GT_BALANCE_CONTRACT	185	197	13	*CURRENCY (2)*

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	St Pos	EndPos	Len	*Format*
	complete (CR 8197)								
	Grand Total Contractor Estimate for the total estimate to complete entire scope of contract (CR 8197)				GT_BALANCE_CONTRACTOR_ESTIMATE	198	210	13	*CURRENCY (2)*
	Grand Total Contract Value based upon Contract Modifications (CR 8197)				GT_CONTRACT_VALUE	211	223	13	*CURRENCY (2)*
	Grand Total Unfilled Orders Outstanding at end of reporting period (CR 8197)				ST_UNFILLED ORDERS	224	236	13	*CURRENCY (2)*

Example File Format

Detail (Repeating Segment)

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	St Pos	End Pos	Len	Format
CCR DETAIL LINE ITEMS:									
Record Type	'DM' for Monthly column 7a Detail; 'DQ' for ITD Column 7c Detail	"RD" for Detail	Required	Required	RECORD_TYPE	1	2	2	CHAR
Reporting Category	Reporting Category (6)	Line item field—submitted with CONTRACTOR data	Required	Required	SERV_ORD_CAT	3	26	24	CHAR
Cost Incurred Month (7a)	Prior Month incurred costs (ACTUALS) for given category.	Line item field—submitted with CONTRACTOR data	Required if detailed line item data is not provided from Cost Incurred Month (7c)	Determined by contract requirement- data from Column 7a, 7c or 8a	COST_INCUR_MONTH	27	39	13	CURRENCY (2)
HR/WYE Incurred Month (7a)	Prior month incurred hours worked [Actuals] for given category.	Line item field—submitted with CONTRACTOR data	Optional unless Required by contract for WYE calculation	Optional unless Required by contract for WYE calculation	HRWYE_INCUR_MONTH	40	49	10	NUMERIC (1)
	Contract Prior Month Planned Dollars Column (7b) reports planned costs for the prior month (CR 8197)				COST_PLANNED_MONTH	50	62	13	CURRENCY (2)
	Contract Cost Dollars Column (7c) which represents Contract Cost Inception to Date (CR 8197)				CUR_COST_INCUR_ITD	63	75	13	CURRENCY (2)
	Contract Planned Cost Dollars Column (7d) which represents Planned Contract Cost Inception to Date (CR 8197)				COST_PLANNED_ITD	76	88	13	CURRENCY (2)
Current Month Estimated Cost (8a)	Estimated costs for first upcoming month for given category.	Line item field—submitted with CONTRACTOR data	Required.	Determined by contract requirement- data from Column 7a, 7c or 8a	CUR_MONTH_EC	89	101	13	CURRENCY (2)
HR/WYE Current Month Estimate (8a)	Estimated hours for first upcoming month for given category. Will only be needed if labor hours are required to be submitted electronically per contract.	Line item field—submitted with CONTRACTOR data	Optional unless Required by contract for WYE calculation	Optional unless Required by contract for WYE calculation	HRWYE_CUR_MONTH_EST	102	111	10	NUMERIC (1)
Next Month Estimated	Estimated costs for second upcoming month for given category.	Line item field—submitted with	Required unless not part of Contract	Required unless not part of Contract	NEXT_MONTH_EC	112	124	13	CURRENCY (2)

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	St Pos	End Pos	Len	Format
Cost (8b)		CONTRACTOR data	scope	scope					
	Balance of Contract for the remaining estimate to complete (8c) (CR 8197)				BALANCE_CONTRACT	125	137	13	CURRENCY (2)
	Contractor Estimate for the total estimate to complete entire scope of contract (9a) (CR 8197)				CONTRACTOR_ESTIMATE	138	150	13	CURRENCY (2)
	Contract Value based upon Contract Modifications (CR 8197)				CONTRACT_VALUE	151	163	13	CURRENCY (2)
	Unfilled Orders Outstanding at end of reporting period (CR 8197)				UNFILLED ORDERS	164	176	13	CURRENCY (2)
	Used by SAP to determine Reporting Category Level (1.1.2.2.1) (CR 8197)				REPORTING_LEVEL	177	206	30	CHAR
	Fill in an "X" if record is a Reporting Category. Otherwise, leave blank for Sub-Reporting Category Line Items and Element of Cost detail records. This field is used by SAP to determine if the record is a Reporting Category. (CR 8197)				REPORTING_CAT_INDICATOR	207	207	1	CHAR

Example File Format

Trailer (provides the number of header & detail records sent from the contractor/vendor/center in order to verify the receipt of complete data after transmission)

CCR Extension Data Element	Description	Contractor Initial Data Mapping	NF 533 Required/ Optional	OTHER CCR Required/ Optional	Field Name	Start Pos	End Pos	Length	Format
TRAILER:									
Record Type	Used by eGate to determine record type	"TL" for Trailer	Required	Required	RECORD_TYPE	1	2	2	CHAR
Record Count	Count of the number of Detail records sent to process (Detail Only)	Trailer field submitted with CONTRACTOR data	Required	Required	RECORD_COUNT	3	9	7	NUMERIC
	Value of spaces				FILLER	10	207	198	CHAR

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	12/01/2011	BP-02	NNJ13HA01C

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. 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 shall be within the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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 Configuration Management Plan	12/01/2011	BP-03	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☐ Technical
- ☒ Administrative
- ☐ SR&QA

6. References *(Optional)*

NASA-STD-0005: Configuration Management Requirements
JPR 1281.8: Product Identification and Traceability
MIL-STD-973: Configuration Management

7. Interrelationships *(e.g., with other DRDs)*

RV-08 Engineering Drawings and Model Files
SW-04 Software Code
TD-03 Flight Product Critical Design Review (CDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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. Astromaterials Research and Exploration Science (ARES) Directorate, does not develop or process flight hardware, so this DRD is not applicable to ARES.

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. Identification, relationships, and integration of Contractor's organization.
b. Identification of the Contractor's CM organization and its responsibilities.
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 real time 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 of manufactured 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. Release and submittal of configuration documentation in relation to program events (e.g. technical reviews).
b. Establishment of internal configuration and contractual baselines.
c. Implementation of internal and NASA configuration control.
d. Establishment of configuration control boards and processes.
e. 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.
   vii. Limited Life Items List.
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.

6.0 Data Management - this section shall describe the Contractor's methods for meeting the Configuration Management technical data requirements:

a. Development, approval, release and submittal of configuration data/documentation (including drawings) in relation to program and contractual events (DRD's, Technical Reviews, FCA/PCA, Acceptance Reviews, COFR, etc.).
b. Plan for subcontractor data management deliveries/control access.
c. Establishment and operation of Engineering Release Unit and CM receipt desk.
d. Process for Documentation control (i.e., DCNs).
e. Retention of historical data.
f. Systems and tools.

The Flight Products Configuration Management Plan shall describe the process to be used for performing electronic configuration management of native files/models and data for each discipline and for subcontractors performing engineering, manufacturing, inspection, testing, procurement, and maintenance. The Configuration Management shall encompass the entire life cycle of the product.

Examples of disciplines and native files include but are not limited to the following:

a. Mechanical Design:
   i. CAD Model (Pro/E, Unigraphics, etc.)
b. Structural Analysis:
   i. Pre & Post-process Finite Element Model (Patran, Ideas, etc.)
   ii. Numerical Analysis input (NASTRAN, FEMAP, ANSYS, etc.)
   iii. Manual Analysis (Excel, MathCAD, etc.)
c. Thermal Analysis:
   i. Pre & Post-process (TSS, Thermal Desktop, Sinda/Fluint, etc.)
   ii. Manual Analysis (Excel, MathCAD, etc.)
d. Power:
e. Electrical Design:
   i. Circuit Board design (Orcad, Altium, etc)
f. Aerodynamic:
g. Aero thermal:
h. Testing:

The plan shall also describe the Configuration Management organization activities, processes, and systems to be employed to support the NASA change evaluation and control process for the approval. In addition, the plan shall describe the process for levying requirements on subcontractors and the monitoring of those subcontractors. Also, the plan shall describe the contractor

process for compiling, reviewing, and maintaining the Acceptance Data Package (ADP) in accordance with SSP 30695, Acceptance Data Package Requirements Specification.

C. FORMAT:

The Contractor's format shall be within the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). The Flight Products Configuration Management Plan shall be delivered in native format, and shall 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:

EA-WI-027:	Configuration Management Requirements
JPR 8500.4:	JSC Engineering Drawing System Manual
SSP 30695:	Acceptance Data Package Requirements Specification
SSP 41170:	ISS Configuration Management (For ISS Deliverables)

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	12/01/2011	BP-06	NNJ13HA01C

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 1852.227-11 "Patent Rights-Retention by the Contractor (Short Form)"	

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 DDMS to disclose subject Invention.

D. MAINTENANCE:

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	BP-07	NNJ13HA01C

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. These reports will be forwarded to NASA Headquarters.	☐ 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:

The following reports are required to be prepared when on-site storage of $75,000, for programs stock in one location.

B. CONTENT:

1. Data Input for NASA Form 1324, Semi-Annual Report of Personnel Property Management Operations.
   This semi-annual report defines the following line item data elements, of March15 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. Data Input for NASA FMD 1489, Semi-Annual Analysis of fixed inventory Assets
   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
   d. Forms for Data Input are available through JB3/Contract Property Management Branch web page http://www6.jsc.nasa.gov/ja/jb/jb3.cfm

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: All of the above are to treat Contractor-Acquired Material (CAM) and Government Furnished Material as one lot.

4. Quarterly Report of Contractor-Acquired material (CAM): This report will consist of two transfer documents (DD Form 1149) that identify material purchased, and received by the Contractor for on-site use. The two documents will be differentiated as follows:
   a. Items bought for direct consumption on site.
   b. Items issued to storeroom(s) that will impact the dollar value of assets on hand.
      The DD Form 1149 will be transferring accountability of these assets to NASA and will 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 JSC Property Administrator. The DD Form 1149 shall identify total number of

line items and total value.

Due Date: 15 working days after the end of the Quarter/Fiscal Year.

5. Annual Report of Exchange/Sale:
   a. As defined by the NASA Property Administrator
   b. Transaction submitted 15 days after the end of each Government Fiscal Year.

C. FORMAT:

Forms for Data Input are available through JB3/Contract Property Management Branch web page http://www6.jsc.nasa.gov/ja/jb/jb3.cfm

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	BP-09	NNJ13HA01C

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)*
Clause 52.245.1 Government Property	

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, and issuing Government property. The Plan should include interaction and Department Office responsibilities. The delegated Property Administrator will request detailed procedures after contract start date.

B. CONTENT:

This plan shall reference those policies and procedures, which constitute the Contractor's Property Management Manual and shall include at a minimum the following categories:

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
   - (**a**) Consumed/Loss, Theft, Damage, Destruction (**b**) Delivered
   - (**c**) Contractor Inventory Disposal (**d**) Abandonment of Government Property
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
13. JSC-Unique Considerations

C. FORMAT:

The Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). The Government Property Management Plan 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:

Federal Acquisition Regulation (FAR) 52.245-1.
NASA FAR Supplement (NFS) Part 1845

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)
Re-procurement Data Package	12/01/2011	BP-10	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
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.	☐ 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:

Provides requirements for delivery to NASA of information on specific items, and supporting documentation related to resource and cost information to be used for re-procurement activities.

B. CONTENT:

A data package shall be submitted containing the following resource and cost information:

1. Labor Resources:
   a. List of all direct labor skills by labor category, segregated by current Statement of Work (SOW) section.
   b. Estimate of the number of indirect labor skills, such as business or computer support, normally charged through an indirect expense pool or through a service center expense.
   c. Current average straight time labor rates for all skills by labor category, mapped by standard labor categories of the original Request for Proposal (RFP), or the standard labor categories defined in the follow-on RFP, if they differ from the original RFP and when these wages were last adjusted for escalation. Also, indicate whether any adjustments are projected to be made prior to the contract expiration.
   d. Number of Full Time Equivalents (FTEs) for each labor category currently on contract, mapped by standard labor category of the original RFP, or the standard labor categories defined in the follow-on RFP, if they differ from the original RFP, segregated by current SOW Section (1 FTE is defined as the work of a full time equivalent per year).
   e. Seniority level of all skills on the current contract.

2. Non-Labor Resources:
   a. Provide total non-labor cost incurred for most recent 12 months, separated by type of expense to include categories for travel and training.

C. FORMAT:

The Contractor's format shall comply with the environment associated with this data in the Engineering Directorate Design Data Management System (DDMS). The Re-procurement Data Package 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:

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	12/15/2011	SMA-01	NNJ13HA01C

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)*
	RV-10 Flight Products Verification and Validation Plan

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 also address supplements contained in Sections C and E of the contract. The plan shall be delivered electronically to the Design Data Management System (DDMS) in native format and be compatible with standard JSC office software loads.

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

SAE AS9100C: Quality Management Systems-Requirements for Aviation, Space and Defense Organizations

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	12/01/2011	SMA-02	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☐ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

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 Parts Selection List (NPSL) Web-site: http://nepp.nasa.gov
4. NASA Tin and Other Metal Whisker Web-site: http://nepp.nasa.gov/whisker

7. Interrelationships *(e.g., with other DRDs)*

SMA-07 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. Date of current version	3. DRL Line Item No.	RFP/Contract No. (Procurement completes)
Safety and Health Plan	12/15/2011	SMA-03	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	5. DRD Category: *(check one)*
Establishes Safety and Health Compliance Plan for Contractors providing support to JSC Organizations.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	7. Interrelationships *(e.g., with other DRDs)*
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	SMA-04 Safety and Health Program Self Evaluation SMA-05 Lessons Learned Program Plan and Lessons Learned

8. Preparation Information *(Include complete instructions for document preparation)*

A. CONTENT:

Provides the Contractor's Safety and Health Plan. Review the plan annually or as directed by the CO and update as needed. The plan shall be updated to meet OSHA, JSC, and VPP requirements. Provide a copy of the updated plan with the changes highlighted to the distribution noted in the Distribution Requirements List (DRL) 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.

B. FORMAT:

1. Cover page - to include as a minimum, blocks for the signatures of Contractor's project manager and designated safety official, NASA COTR, JSC Safety and Test Operations Division Chief, JSC Occupational Health Officer, and the NASA Contracting Officer. Other signatures may be required at the discretion of the Government.
2. Table of Contents. See content below.
3. Body of Plan - Contractor's format is acceptable but should be aligned with the elements of the content below.
4. When preparing its plan, the Contractor is expected to review all the items below and tailor its plan accordingly. Tailoring is the process of identifying those items that must be performed to assure the safety of the contractor's employees while performing work on the contract. 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 shall clearly identify those resources to be provided by the Contractor and proposed resources to be provided by the Government. This review and supporting rationale is to be made 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.
6. The plan must cover the prime contractor and all subcontractors.

<u>BODY OF PLAN DETAILS</u>:

1. MANAGEMENT LEADERSHIP AND EMPLOYEE PARTICIPATION

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 the approach to the following:

1.2.1 Specific annual safety and health goals and objectives to be met.

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 rate (DART).

1.3 Management Leadership. Describe management's procedures for implementing its sustaining commitment to safety and

health compliance through visible management activities and initiatives including a commitment to exercise management prerogatives to ensure workplace safety and health. Describe processes and procedures to making this visible 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 (e.g., non-supervisory) involvement in safety and health compliance program development, implementation and decision-making. Describe the scope and breadth of employee participation to be achieved so that approximate safety and health risk areas of the contract are equitably represented. Describe methods to be used to obtain employee buy in and address the behavioral aspects of safety.

1.5 Assignment of Responsibility. Describe line and staff responsibilities for safety and health program implementation. Identify any other personnel or organization that provides safety services or exercises any form of control or assurance in these areas. State the means of communication and interface concerning related issues used by line, staff, and others (such as documentation, concurrence requirements, committee structure, sharing of the work site with NASA and other Contractors, or other special responsibilities and support). As a minimum, the Contractor shall identify the following:

1.5.1 Safety Representative. Identify by title, the individual who will be trained and certified in accordance with JPR 1700.1 to be responsive to Center-wide safety, health and fire protection concerns and goals, and who will participate in meetings 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 (such as the company physician) by name, address, and telephone number to the JSC Occupational Medicine Clinic, mail code SD32. This will facilitate communication of medical data to Contractor management. Prompt notification to the JSC Occupational Medicine Clinic shall be given of any changes that occur in the identity of 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 are needed to 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 in accordance with JPR 1700.1. The Roster shall be provided by letter to the JSC Safety and Test Operations Division, mail code NS2, with copies to the Contracting Officer and the Contracting Officer's Technical Representative (COTR). The initial letter shall be received by the Government not later than 15 days after contract start.

1.5.4 Designated Safety 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 consistency of the plan for compliance with applicable NASA and JSC requirements and contractual direction as well as applicable Federal, State, and Local regulations and how compliance will be maintained throughout the life of the contract.

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. The use of traditional and/or innovative personnel management methods (including discipline, motivational techniques, or any other technique that ensures accountability) will be referenced as a minimum and described as appropriate.

1.8 Program Evaluation. Describe the approach to safety and health program evaluation. The program evaluation consists of:

1.8.1 [RESERVED.]

1.8.2 Annual Self Evaluation Report. An annual, written, self-evaluation report that shall be delivered to the Safety and Test Operations Division, mail code NS, the Occupational Health Officer, mail code SD33, the Contracting Officer and the COTR. The self evaluation shall be provided for the Contractor performance evaluation. The self-evaluation shall 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. 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. The self-evaluation shall, as a minimum, cover the elements of the approved safety and health plan.

1.9 Miscellaneous Reports. The Contractor shall acknowledge the following as standing requests from the Government to be handled as described below.

1.9.1 Roster of Terminated Employees. Identify personnel terminated by the Contractor. Send hard copies to the JSC Occupational Health Officer, Contracting Officer, and the COTR no later than 30 days after the end of each contract year. At the Contractor's discretion, the report may be submitted for 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). The Contractor shall prepare and/or deliver MSDS for hazardous materials brought onto Government property or included in products delivered to the Government. This data is required by the Occupational Safety and Health Administration (OSHA) regulation, 29 CFR 1910.1200, "Hazard Communication", EPA "Emergency Planning and Community Right-to-Know (EPCRA, ref. 40 CFR 302, 311, 312); and the Texas Department of Health (TDH, ref. Chapters 505-507 of the Health and Safety Code), 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. This inventory is also required by JPR 1700.1, "JSC Safety and Health Handbook", as revised. One (1) copy of each MSDS shall be sent upon receipt of the material for use on NASA property to the JSC Central MSDS Repository, mail code SD33, along with information on new or changed locations and/or quantities normally stored or used. If the MSDS arrive with the material and is needed for immediate use, the MSDS shall be delivered to the Central MSDS Repository by close of business of the next working day after it enters the site.

1.9.3 Hazardous Materials Inventory. The Contractor shall compile a quarterly inventory report of all hazardous materials it has located on Government property, 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. This inventory is also required by JPR 1700.1, "JSC Safety and Health Handbook". The call for this inventory and instructions for delivery will be issued by the JSC Human Health and Performance Contract contractor , mail code SD33. This information shall use the format used by JSC for chemical inventory compilation to provide the following:

a. The identity of the material (product number, chemical, manufacturer, and NSN as available).
b. The location of the material by building, room and area/cabinet number.
c. The quantity of each material normally kept at each location (number of containers, container size, type container, unit of measure, conversion factor, storage temp & pressure, physical state/form, specific gravity, total pounds).
d. Peak quantity stored.
e. Actual or estimated rate of annual usage of each chemical.

1.10 Government Access to Safety and Health Program Documentation. The Contractor shall recognize, in its plan, that all safety and health documentation (including relevant personnel records) be readily available for inspection or audit at the Government's request. Electronic access by the Government to this data is preferred as long as Privacy Act requirements are met and Government safety and health professionals and their representatives have full and unimpeded access for review and audit purposes. For Contractor activities conducted on NASA property, the Contractor shall identify what records will be made available to the Government in accordance with the criteria of OSHA as implemented in JPR 1700.1, "JSC Safety and Health Handbook". The contractor shall identify any electronic systems it creates to house or make available contractor websites used to publish or distribute its safety and health program information. Access by NASA safety, health, environmental, and emergency planning professionals and their representatives shall routinely be available on a read only basis. 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. The Contractor may be requested to participate in the review and modification of safety requirements that are to be implemented by the Government including any referenced documents therein. This review activity shall be implemented at the direction of the NASA Contracting Officer's Technical Representative (COTR) in accordance with established contractual procedures.

1.12 Procurement. Identify procedures used to assure that procurements are reviewed for safety and health compliance considerations and specifications contain appropriate safety criteria and instructions. Set forth authority and responsibility to assure that safety tasks are clearly stated in subcontracts.

1.13 Certified Professional Resources. Discuss access to certified professional resources for safety and health protection. Discuss their roles in motivation/awareness, worksite analysis, hazard prevention and control, and training.

2. WORKSITE ANALYSIS

2.1 Analysis of Worksite Hazards. Contractor worksite hazards shall be systematically identified through a combination of surveys, analyses, and inspections of the workplace, investigations of mishaps and close calls, and the collection and trend analysis of safety and health data such as: records of occupational injuries and illnesses, findings and observations from preventive maintenance activities, facilities related incidents related to partial or full loss of systems functions; etc. Describe how hazards identified by any of the techniques identified below shall be ranked, processed, and mitigated in accordance with JPR 1700.1. All hazards on NASA property, which are immediately dangerous to life or health, shall be reported immediately to the Safety and Test Operations Division. All safety engineering products that address operations, equipment, etc., on NASA property shall be subject to JSC Safety and Test Operations Division review and concurrence unless otherwise waived by the JSC Safety and Test Operations Division.

2.2 Industrial Hygiene. Describe the industrial hygiene program and how it will be coordinated with the JSC Government provided resources for industrial hygiene. In the event corporate resources are used to determine workplace exposures, copies of all monitoring data shall be provided to JSC Human Health and Performance Contract contractor, mail code SD33, within 15 days of receipt of results.

2.3 Hazard Identification. Describe the procedures and techniques to be utilized to compile an inventory of hazards associated with the work to be performed on this contract. This inventory of hazards shall address the work specified in this contract as well as operations and work environments in the vicinity or in close proximity to contract operations. The results shall be reported 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:

2.3.1 Comprehensive Survey. A "wall to wall" 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.

2.3.2 Change (Pre-use) Analysis. Typically addresses modifications in facilities, equipment, processes, and materials (including waste); and related procedures for operations and maintenance. Change analyses periodically will be driven by new or modified regulatory and NASA requirements.

2.3.3 Hazard Analysis. Address facilities, systems/subsystems, operations, processes, materials (including waste), and specific tasks or jobs. Analyses and report formats shall be in accordance with JSC 17773, "Preparing of Hazard Analyses for JSC Ground Operations." Job hazard analyses for offices shall utilize the office safety checklist found at http://www6.jsc.nasa.gov/safety/checklists/. Recommended changes to the checklist may be sent to the Safety & Test Operations Division, mail code NS, for consideration.

2.3.4 Survey Results. The Contractors safety plan shall 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. The safety plan shall describe the contractor's approach to notify NASA and other parties external to the contract work of identified hazards and subsequent analyses and controls.

2.4 Inspections. The data includes assignments, procedures, and frequency for regular inspection and evaluation of work areas for hazards and accountability for implementation of corrective measures. The Contractor shall describe administrative requirements and procedures for control of regularly scheduled inspections for fire and explosion hazards. The Contractor has the option, in lieu of this detail, to identify policies and procedures with the stipulation that the results (including findings) of inspections conducted on NASA property or involving Government furnished property shall be documented in safety program evaluations or the monthly Accident/Incident Summary reports at the contractor's discretion. Inspections will identify:

a. Discrepancies between observed conditions and current requirements.
b. New (not previously identified) or modified hazards.
c. Use of JSC's Hazard Abatement Tracking System to manage hazards onsite at JSC (see paragraph 3.12 below).
d. Use of JSC's Building Inspection Tracking System to record performance of building inspections.

2.5 Protective Equipment. Set forth procedures for obtaining, inspecting, and maintaining all appropriate protective equipment, as required, or reference written procedures pertaining to this subject. Set forth methods for keeping records of such inspections and maintenance programs.

2.6 Employee Reports of Hazards (also called Close Calls). Identification of methods to encourage employees to report hazardous conditions (e.g., close calls) and participate in the analysis/abatement. The Contractor shall describe steps it will take to create reprisal-free employee reporting with emphasis on management support for employees and describe methods to be used to incorporate employee insights into hazard abatement and motivation/awareness activities.

2.7 Accident and Record Analysis

2.7.1 Mishap Contingency Plan. The Contractor shall include a mishap contingency plan as part of the Safety and Health Plan which meets the requirements of NPR 8621.1, "NASA Procedural Requirement for Mishap and Close Call Reporting, Investigating, and Recordkeeping", and JPR 1700.1, JSC Safety and Health Handbook" to assure reporting and investigation of mishaps and the corrective actions implemented to prevent recurrence. This plan shall address mishaps that occur on Government property, Contractor property, or third party property. The plan shall address use of the quick incident reports found at the home page of the NASA Incident Reporting Information System (IRIS) at https://nasa.ex3host.com/iris/newmenu/login.asp and use of NASA forms as specified in JPR1700.1 or any alternate forms used by the Contractor. It shall emphasize timely notification to NASA, including specific NASA program or project notification requirements; preliminary and formal investigation procedures; exercise of jurisdiction over a mishap investigation involving NASA and other contractor personnel (Government investigation takes precedence over any contractor investigation); preparation and submission of a formal report to NASA; follow up of corrective actions; communication of lessons learned to NASA; and solutions to minimize duplications in reporting and documentation including use of alternate forms, etc. The plan shall specifically address:

a. Procedures for immediate action to be taken with regard to fires, hazardous or toxic material releases, and other emergencies, including notification of the JSC Emergency Operations Center (EOC) (JSC, Ellington Field, and Sonny Carter Training Facility at 3-3333; offsite at 281-483-3333). Contact the EOC for guidance when a Type 'A' or 'B' mishap occurs in the course of performing work on a NASA contract, in whole or in part. For Type 'C' property damage mishaps, call the JSC Safety Hotline at 281-483-7500 and await instructions.
b. Immediate notification of the NASA Safety & Test Operations Division, the Contracting Officer, and the COTR in the advent of a type 'A' or 'B' mishap or 'C', property damage mishap and all Close Calls with equivalent potential so NASA may take custody of the mishap scene and initiate its investigation as soon as it is safe.
c. For Type C injuries and all lower level mishaps, the Contractor shall perform its own investigation and submit a report to NASA in accordance with the requirements of JPR 1700.1.
d. When a NASA investigation is required, witnesses shall be identified and their names and contact information provided to NASA investigator but witness statement must be requested and collected by NASA. Such statements will be retained by the Government as part of the mishap file in accordance with NPR 8621.1.
e. The Contractor shall deliver to NASA mishap reports which shall include the data specified in NPR 8621.1 for the level of mishap. Details regarding NASA approval and endorsements as specified in NPR 8621.1 shall be included in the approved Safety and Health Plan.

NOTE: The NASA Form (NF) 1627 is available only from the web page at http://jschandbook.jsc.nasa.gov/ and is being used until JSC Safety & Test Operations Division has implemented a replacement form to be used for all JSC and WSTF mishaps.

2.7.2 Trend Analysis. Describe 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, the Contractor shall describe the methods of providing data as follows.

a. Accident/Incident Summary Report. The Contractor shall prepare and deliver Accident/Incident Summary Reports as specified on JSC Form 288, "Accident/Incident Statistics" as revised. All new and open mishaps, including vehicle accidents, incidents, injuries, fires, and close calls shall be described in summary form along with current status. Negative reports are also required monthly. Report frequency is monthly; date due is the 10th days of the month following each month reported. The report shall be delivered electronically to the JSC Safety and Test Operations Division, the CO, the COTR, and to the JSC-Safety-Report-Submittals@mail.nasa.gov inbox.

b. Log of Occupational Injuries/Illnesses (OSHA Logs)

i. For each establishment on and off NASA property that performs work on this contract, the Contractor shall deliver a copy of its annual summary of occupational injuries and illnesses (OSHA 300 and OSHA 300A or equivalent) as described in Title 29, Code of Federal Regulations, Subpart 1904.5 If the Contractor is exempt by regulation from maintaining and publishing such logs, equivalent data in Contractor's format is acceptable (such as loss runs from insurance carrier) which contains the data required by JSC Form 288.

ii. Data shall be compiled and reported by calendar year and delivered within 45 days after the end of the year to be reported (e.g. not later than February 15 of the year following).

3. HAZARD PREVENTION AND CONTROL

3.1 Identified hazards must be eliminated or controlled. Describe the approach for implementing Chapter 3.5 of JPR 1700.1. If a Contractor provided system is used to document and track such hazards, the system shall be readily available and accessible to JSC safety, health, environmental, and emergency planning personnel and their representatives on a read only basis. Describe the approach for communication of such data.

3.2 Appropriate Controls. Describe the approach to consideration and selection of controls. Discuss use of hazard reduction precedence sequence (see JPR 1700.1). Describe the approach to identify and accept residual risk. Describe the approach for implementing controls including verifying their effectiveness. Discuss the scope of coverage (hazardous chemicals, equipment, energies, etc.). Discuss the need for coordination with safety, health, and emergency authorities at JSC.

3.3 Hazardous Operations and Processes. Establish methods for notifying 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. JPR 1700.1 will serve as a guide for defining, classifying, and prioritizing hazardous operations; 29 CFR 1910.119 will be the guide for hazardous processes when the material or process meets the requirements therein.

3.3.1 List of Hazardous Operations. Develop and maintain a list of hazardous operations and processes to be performed during the life of this contract. The list of hazardous operations and processes shall be provided as part of the plan for review and approval. The Contractor shall collaborate with the JSC Safety & Test Operations Division to identify operations and processes to be considered hazardous. The JSC Safety and Test Operations Division will have the final authority.

3.3.2 Procedures. Before hazardous operations or processes commence, the Contractor shall ensure approved, written procedures, with particular emphasis on identifying the job safety steps, are present and being utilized. Upon request, the Contractor shall provide to NASA data necessary to verify compliance.

3.3.3 Hazards Outside of Contract Scope. Should operations or processes that may have safety or health implications outside of contract operations (e.g., pose threats to non-contract personnel or assets) be identified, the Contractor shall notify such circumstances to the JSC Safety and Test Operations Division and the Occupational Health Officer who will provide additional instructions for further NASA management review and approval.

3.4 Written Procedures. Identification of methods to assure that relevant hazardous situations and proper controls are identified in documentation (e.g. inspection procedures, test procedures, etc.), and other related information. Describe

methods to assure that written procedures are developed for all hazardous operations including testing, maintenance, repairs, and handling of hazardous materials and hazardous waste. Procedures shall be developed in a format suitable for use as safety documentation (such as a safety manual) and be readily available to personnel as required to correctly perform their duties.

3.5 Hazardous Operations Permits. Describe the approach for identifying facilities, operations and/or tasks where hazardous operations permits are required, as specified in JPR 1700.1, such as confined space entry, hot work, etc. Set forth guidance to adhere to established NASA JSC procedures. Clearly state the role of the safety group or function to control such permits.

3.6 Operations Involving Potential Asbestos Exposures. Describe the approach to ensure compliance with the JSC Asbestos Control Program per JPR 1700.1.

3.7 Operations Involving Exposures to Toxic or Unhealthful Materials. Describe the approach to ensure operations involving exposure to toxic or unhealthful materials are evaluated by the JSC Occupational Health Office prior to implementation and must be properly controlled as advised by same. JSC Occupational Medicine must be notified prior to initiation of any new or modified operation potentially hazardous to health.

3.8 [RESERVED.]

3.9 Baseline Documentation. Discuss responsibilities for maintaining facilities baseline documentation in accordance with JSC requirements. The Contractor shall implement any facilities baseline documentation tasks (including safety engineering) as provided in the Contractor's plan approved by NASA or as required by Government direction.

3.10 Preventive Maintenance. Discuss the approach to preventive maintenance. Describe scope, frequency, and supporting rationale for the preventive maintenance program including facilities and/or equipment to be emphasized or de-emphasized. Discuss methods to promote awareness in the NASA community (such as alerts, safety flashes, etc.) when preventive maintenance reveals design or operational concerns in facilities and equipment (and related processes where applicable).

3.11 Medical (Occupational Healthcare) Program. Describe the medical surveillance program and injury/illness case management to evaluate personnel and workplace conditions to identify specific health issues and prevent degradation of personnel health as a result of occupational exposures. Discuss approach to Cardiopulmonary Resuscitation (CPR), first aid, and, return to work policies and the use of Government provided medical and emergency facilities for the initial treatment of occupational injuries/illnesses.

3.12. Hazard Correction and Tracking. Describe the 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:

3.12.1 Personnel Awareness of Hazards. Describe the approach to communicate unsafe conditions and approved countermeasures to Contractor employees. Discuss the approach to communicating such conditions to the Government and other contractors whose personnel may be exposed to such unsafe conditions. Discuss communications with Facility Managers. Discuss use of the NASA Lessons Learned Information System for both obtaining lessons from other sources and as a repository for lessons learned during performance of the contract.

3.12.2. Interim and Final Abatement Plans. Describe the approach for interim and final abatement of hazards, including submittal of data to the JSC Hazard Abatement and Tracking System (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. Discuss the approach to posting such plans using JSC Form 1240, "JSC Notice of Safety or Health and Action Plan", or equivalent. Discuss the compatibility of any Contactor provided system with JSC's role of facility managers in abatement planning, implementation, and verification.

3.13 Disciplinary System. Describe the system for ensuring safety and health discipline (including subcontractors). Describe the approach to modifying personnel behaviors when personnel are exhibiting discrepant safety and health performance.

3.14 Emergency Preparedness. Discuss the approach to emergency preparedness and contingency planning which addresses fire, explosion, inclement weather, etc. Discuss compliance with 29 CFR 1910.120 (HAZWOPER) and role in the JSC Incident Command System (see JPR 1700.1 for details). Discuss methods to be used for notification of JSC emergency forces including emergency dispatcher, safety hotline, director's safety hotline, etc. Discuss establishment of pre-planning strategies through procedures, training, drills, etc. Discuss methods to verify emergency readiness.

4. SAFETY AND HEALTH TRAINING

The Safety and Health training program shall address the following:

4.1 The training program including identification of responsibility for training employees to assure understanding of safe work practices, hazard recognition, and appropriate responses for protective and/or emergency countermeasures, including training to meet Federal, State, and Local regulatory requirements.

4.2 The approach to identifying training needs including traceability to exercises such as job safety analyses, performance evaluation profiles, hazard analyses, mishap investigations, trend analyses, etc.

4.3 The approach to training personnel in the proper use and care of personal protective equipment (PPE).

4.4 How training will be tailored towards specific audiences (management, supervisors, and employees) and topics (safety orientation for new hires, specific training for certain tasks or operations).

4.5 The approach to ensure that training is retained and practiced. Discuss personnel certification programs. Certifications should include documentation that training requirements and physical conditions have been satisfied (examples include physical examination, testing, and on-the-job performance).

4.6 The utilization of JSC safety and health training resources (such as asbestos worker training/certification, hazard communication, confined space entry, lockout/tag out, etc.) as appropriate with particular emphasis on programs designed for the multiple employer work environment on NASA property. Prior to training Contractor personnel in any regulatory mandated training, an agreement will be secured with JSC Safety & Test Operations Division and the Occupational Health Officer in the Space Medicine Division. This agreement will ensure that safety and health training resources available from NASA are utilized where appropriate.

4.7 The approach to making all training materials and training records available to NASA, and other Federal, state, and local agencies for their review upon request.

OTHER DELIVERABLES:

The requirements for this plan as detailed in the instructions on plan content above include instructions for specific reports and data to be submitted to the Government. These instructions are to be included in the plan and represent contractual commitments by the Contractor to provide this information. The reports and deliverables include the following (along with paragraph references):

1.5.2 Company Physician/Occupational Injury/illness case manager – at contract start and as revised.
1.5.3 Building Fire Wardens (Roster)
1.5.4 Designated Safety Official
1.8.2 Annual Safety and Health Self Evaluation Report
1.9.1 Roster of Terminated Employees
1.9.2 Material Safety Data Sheets (MSDS)
1.9.3 Hazardous Materials Inventory
2.2 Industrial Hygiene data that is obtained by the contractor from non-JSC services.
2.3 Inventory of Hazardous Operations
2.3.3 Job Hazard Analysis for Offices including recommended revisions
2.4.d Inspection results entered in Building Inspection Tracking System (BITS)
2.4.2 Monthly Metrics Report – inspection finding and corrective actions
2.4.2 Hazard Abatement Tracking System – for hazards open more than 30 days.
2.6 Employee Reports of Hazards (Close calls) forwarded to JSC close call tracking system.
2.7.1 Mishap reporting and Lessons Learned.
2.7.2.a JSC Form 288, "Accident/Incident Statistics"

2.7.2.b	Log of Occupational Injuries/Illnesses (OSHA Logs)
3.1, 3.12	Hazards recorded in JSC Hazard Abatement Tracking System.
3.12.2	Interim and Final Abatement Plans.

C. MAINTENANCE:

Revisions are made on the DDMS.

D. DISTRIBUTION:

Distribution shall be in accordance with the Data Requirements List.

E. APPLICABLE DOCUMENTS:

1. OSHA CSP 03-01-003, Voluntary Protection Program (VPP): Policies and Procedures Manual
2. JSC 17773, Instructions for Preparation of Hazard Analysis for JSC Ground Operations
3. JPR 1700.1 JSC Safety and Health Handbook

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)
Safety and Health Program Self Evaluation	12/01/2011	SMA-04	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*	**5. DRD Category:** *(check one)*
Self evaluation of Contractor's Safety and Health Program Performance.	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
JPR 1700.1 JSC Safety and Health Handbook	SMA-03 Safety and Health Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. CONTENT:

The Contractor shall conduct an annual self-evaluation of its safety and health program as required by its safety and health plan. Information required:

a. The internal assessment of safety and health program effectiveness during the report period (i.e., the previous year) indicating the status of goals or objectives previously established and areas of strength and weakness in Contractor safety program performance.
b. Safety and health concerns and resolutions relating to JSC operations which may have been identified during the report period.
c. Unresolved safety and health concerns relating to JSC operations which the Contractor feels merit attention of JSC safety and health management.
d. The goals and objectives of the Contractor safety and health program for the next report period.
e. An analysis of the contractor's performance at JSC-administered establishments in each of the 32 Voluntary Protection Program sub-elements found in the Federal Register Notice 65:45649-45663, July 24, 2000.
f. Attach action plans for identified problem areas. Action plans must include schedule for periodic progress reports to the Government on a frequency agreed to by the Government and the Contractor for each problem area.

Report due September 30th of each year.

B. FORMAT:

As required by the cognizant OSHA regional office. Contractors who have submitted a written self-evaluation as a VPP site may submit their original report to JSC in lieu of writing a new self-evaluation provided that all action plans and status are updated. Data shall be submitted to the Engineering Directorate Design Data Management System (DDMS) in native format compatible with the JSC standard software load.

C. MAINTENANCE:

Revisions are made on the DDMS.

D. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

E. APPLICABLE DOCUMENTS:

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)
Lessons Learned Program Plan and Lessons Learned	12/01/11	SMA-05	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

Establishes Process for obtaining Lessons Learned from Contractor for possible publication in JSC Lessons Learned Database and NASA Lessons Learned Information System (LLIS)

***The Office of Primary Responsibility for this DRD is the JSC Knowledge Management Office in the Safety and Mission Assurance Directorate

5. DRD Category: *(check one)*

- ☐ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

1. JPR 2310.1, "JSC Organizational Learning Program", Section 4, "Lessons Learned Process"
2. NPR 7120.5C, "NASA Program and Project Management Processes and Requirements"
3. NPR 7120.6, "Lessons Learned Process"
4. NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping"
5. NPR 8715.3, "NASA Safety Manual"

7. Interrelationships *(e.g., with other DRDs)*

SMA-03 Safety and Health Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. CONTENT:

1) Lessons Learned Program Plan: The contractor shall develop and implement a lessons learned program plan consistent with the areas defined in the SOW and/or the WBS. The lessons learned program plan shall include:
   a) Lessons learned program structure and management responsibility for lessons learned.
   b) Lessons Learned advocacy throughout the contracted effort.
   c) Approach to selection, review, and validation of lessons learned using contract and government assets.
   d) 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.
   e) 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.
   f) 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.
   g) Goals for the contractor's 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.
   h) 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.)

2) Access to the JSC Lessons Learned Database and the NASA Lessons Learned Information System:
   a) To obtain access privileges to the JSC Lesson learned Database, JSC Domain Internet access is required to enter and review lessons learned information. The JSC lessons learned database is accessible at https://lldb.jsc.nasa.gov/index.cfm?&CFID=635927&CFTOKEN=72741895
   b) To obtain access to the NASA Lessons Learned Information System, go to http://llis.nasa.gov/ and follow instructions.

3) Criteria for Selecting Lessons Learned: Uncommon insight arising from any event or observation that will benefit from sharing with a larger community of interested parties. 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. Sharing of lessons with other Government agencies is also expected.

4) Frequency of submission for lessons learned: As follows (in order of decreasing Government preference):
   a) Data entry to the JSC LLDB or NASA LLIS within 30 days of a triggering event.
   b) Within 30 days of a program milestone, mishap investigation, or hazard or other engineering analysis /evaluation is completed.
   c) 30 days prior to end of contract evaluation period, or 45 days prior to end of contract, whichever is applicable.

5) Distribution of Lessons:
   a) Lessons are distributed by entry into the JSC Lessons Learned Database which submits lessons to the NASA Lessons

Learned Information System once approved and published. The NASA Lessons Learned Information System may be used directly if the contractor is outside the JSC domain or firewall.

b) Contracting Officer's Technical Representative (COTR).

6) Content of Lessons:
   a) Subject - one line subject of the lesson.
   b) Lesson Learned - usually one sentence that describes insight gained.
   c) Description of Event - narrative that describes what happened.
   d) Recommendations - may be an action plan, suggestion, etc., that was adopted at event source.
   e) Supporting documentation - submit as needed to augment understanding of lesson (photographs with or without pointers and text labels), illustrations, drawings, etc.).
   f) Contact name and e-mail address (for follow up by the Government prior to publication of lesson).

7) Definitions: Refer to NASA LLIS at http://llis.nasa.gov and JPR 2310.1 for definitions of terms used

8) Evaluation of Contactor Lessons Learned Program performance: The following characteristics are evaluated by the Government in order of decreasing importance:
   a) Effectiveness of approach to lessons learned advocacy.
   b) Ability to recognize and capitalize on lessons learned in a timely manner.
   c) Breadth of participation by the contracted effort to include from where lessons originate for publication and to whom lessons are disseminated for use by contract assets.
   d) Technical quality of lessons submitted including thoroughness and readiness of supporting documentation for publication.

B. FORMAT:

C. MAINTENANCE:

D. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

E. APPLICABLE DOCUMENTS:

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	12/01/2011	SMA-06	NNJ13HA01C

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	12/15/2011	SMA-07	NNJ13HA01C

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)*
	SOW Section 1.2.3 TD-20 Non-Conformance Record

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Technical Representative (COTR), 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 COTR 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.

B. 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.

C. MAINTENANCE:

Changes to the Contractor's procedures shall require approval by the Contracting Officer with concurrence from the JSC

NASA-Advisory/GIDEP Coordinator.

D. DISTRIBUTION:

Distribution shall be in accordance with the Data Requirements List (DRL).

E. 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
- SO300-BU-GYD-010, GIDEP Requirements Manual

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	12/01/2011	RV-01	NNJ13HA01C

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 Plan RV-02 Regular Status Report/Summary Review

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Order (TO).

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 TO. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-02	NNJ13HA01C

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. 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 Order (TO). 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 TO.

B. CONTENT:

The contents of the report shall address all the products and services defined in the TOs held by the contractor that are still active. The structure of the report shall be selected by the contractor and agreed upon by the COTR, or their designated representative. The following shall be addressed in the report:

1) <u>Cost Performance Summary (Performance Based):</u>
   a) Project Actual-To-Date Cost & Projected Total Cost - Last Period
   b) Project Actual-To-Date Cost & Projected Total Cost - This Period
   c) Projected Total Cost Addition Due to Approved Changes
   d) Graphics of Initial Cost Projection, Initial Cost Projection + Approved Changes Projection, Full Cost Projection
   e) Variance not due to approved change and description of cause

2) <u>Resource Performance Summary (Level-Of-Effort):</u>
   a) For the Work Breakdown Structure (WBS) reporting level requested in the TO, the following summary is to be provided by standard labor category. Graphic of the initial planned manpower for each WBS item for the TO, with current planned manpower, with approved changes for the project, actual manpower expended to date, and percentage of the WBS task completed.
   b) Technical & Quality Performance Status:
      i. Nominal Technical/Quality Performance Achieved
      ii. Better than Nominal Technical/Quality Performance Achieved
      iii. Nominal Technical/Quality Performance not Achieved
      iv. Action to be taken, to resolve unachieved Nominal Performance
      v. Notice of potential failure to meet future Nominal Performance, identification of causes, along with recommendations as appropriate
      vi. Other Technical and Quality Subjects particular to the project

3) <u>Product Production and Schedule Status:</u>
   a) Overall Schedule Status
   b) Completed Products and Schedule – Projected in Last Monthly Period
   c) Completed Products and Schedule - Actual This Period
   d) Projected Next Month's Products, and Schedule Completion
   e) Change from last month due to Approved Changes
   f) Variance not due to approved change, and description of cause

4) <u>Variance Deployed Hardware Status:</u>
   a) Open Anomalies Status (all formal reporting status)
   b) Corrective Actions Status
   c) Lessons Learned

5) Management:
   a) Corrective Actions Taken This Period
   b) Organization
   c) Efficiencies Implementation
   d) Impacts of External Dependencies

6) Summary Review:
   a) The Summary Review shall be a presentation that contains the highlights of the report. The COTR or designee, and the contractor shall agree upon the contents of the review. The Summary Review shall not address the contents of Product Production and Schedule Status section above.

7) Minutes during the Summary Review shall be taken, and submitted with the Status Report.

8) Additional content as identified in the TO.

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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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)	12/01/2011	RV-03	NNJ13HA01C

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 Engineering Directorate Customer(s), the S&MA organization, and the Engineering Directorate 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 EA-WI-025 GFE Flight Project Software and Firmware Development	RV-07 End Item Specification

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Engineering Directorate and its 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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 (PRVD)	12/01/2011	RV-04	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023 Project Management of GFE Flight Products

7. Interrelationships *(e.g., with other DRDs)*

RV-03 Project Technical Requirements Specification (PTRS)

RV-10 Flight Products Verification and Validation Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 shall contain the functionality of the separate Project Technical Requirements Specification, Verification and Validation Plan. The contents will depend on the nature of the Task Order but shall 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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 (CARD)	12/01/2011	RV-05	NNJ13HA01C

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. SCOPE:

The CARD 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. 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:

PART ONE:

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 (DRL).

E. DISTRIBUTION:
Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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)	12/01/2011	RV-06	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

This document defines the requirements for the interfaces between the flight product and payload, and program interfaces required to make the product fully functional.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023 Project Management of GFE Flight Projects

7. Interrelationships *(e.g., with other DRDs)*

TD-01 Flight Products System Requirements Review (SRR) Data Package

TD-02 Preliminary Design Review Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Interface Control Document (ICD) is the formal definition of the 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-07	NNJ13HA01C

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	RV-03 Project Technical Requirements Specification (PTRS)

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 that apply to the safety, performance, design, operation, interoperability, reliability, maintainability, verifiability, and transportability of the end item. .

B. CONTENT:

The EIS 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-08	NNJ13HA01C

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. 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. 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 Order (TO). 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 TO 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.

D. MAINTENANCE:

See Data Requirements List (DRL). 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.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

JPR 8500.4 Engineering Drawing Systems Manual

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	12/01/2011	RV-09	NNJ13HA01C

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	

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Order may define additional project specific milestones that require this approval.

B. CONTENT:

This document shall 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 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-10	NNJ13HA01C

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	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. 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 Order.

An example of a V&VD 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

Verification Matrix and 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:

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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL**.**

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-11	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

The Qualification Plan formally presents the approach to qualifying the first unit delivery of flight products.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023 Project Management of GFE Flight Projects
EA-WI-025 GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

BP-03 Configuration Management Plan
RV-10 Flight Products Verification and Validation Plan
RV-12 Flight Products Qualification Test Procedures

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 approved 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:

The Qualification Plan does not have a specific format. The 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-12	NNJ13HA01C

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-07 End Item Specification RV-10 Flight Products Verification and Validation Plan RV-14 Flight Products Qualification Report SW-01 Software Requirements Document

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

JWI 8730.6 Task Performance Sheet (TPS)

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	12/01/2011	RV-13	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

JWI 8730.6 Task Performance Sheet (TPS)

7. Interrelationships *(e.g., with other DRDs)*

RV-07 End Item Specification
RV-10 Flight Products Verification and Validation Plan
SW-01 Software Requirements Document
TD-04 Acceptance Data Package (ADP)

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE

The Acceptance Test Procedures document the detailed procedures used to test flight products and to write detailed procedures on a Task Performance Sheet (TPS). Complete procedures are required for acceptance of each Flight Product.

B. CONTENT:

The Acceptance Test Procedures shall contain the following:

9. Identification and configuration of the specific Flight Product being tested
10. Detailed description of the test objective(s)
11. Description of all relevant test equipment and facility(ies) used
12. Full set of test procedures
13. Criteria for passing or failing the test
14. Specification of the tolerances on all operational parameters with go and no-go criteria
15. Initial settings for all controls, power supply voltages, etc.
16. Safety hardware that is mandatory to be verified as operational prior to testing, with reference to the procedures used

C. FORMAT:

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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	RV-14	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023 Project Management of GFE Flight Products
EA-WI-025 GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

RV-10 Flight Products Verification and Validation Plan
RV-11 Flight Products Qualification Plan
RV-12 Flight Hardware Qualification Test Procedures
TD-15 EEE Parts List and Analysis Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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 Document	12/01/2011	SW-01	NNJ13HA01C

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	RV-03 Project Technical Requirements Specification RV-06 Interface Control Document SW-02 Software Development Plan

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	SW-02	NNJ13HA01C

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 EA-WI-025 GFE Flight Project Software and Firmware Development EA-WI-027 Configuration Management, Engineering Directorate NPR 7150.2 NASA Software Engineering Requirements NASA-STD-8739.8 Software Assurance Standard	

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Engineering that are described in the Software Development Plan (SDP) outline provided in EA-WI-025. The plan shall describe the Contractor's use of Off-The-Self (OTS) 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	SW-03	NNJ13HA01C

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-018 Use of Off-the Shelf Software in Flight Projects EA-WI-025 GFE Flight Project Software and Firmware Development	SW-01 Software Requirements Document TD-02 PDR Data Package TD-03 CDR Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	SW-04	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

Record the lines of code in developed software, or the set up files and data for commercial software.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-025 GFE Flight Project Software and Firmware Development
EA-WI-027 Configuration Management Requirements

7. Interrelationships *(e.g., with other DRDs)*

SW-03 Flight Products Software Design Document

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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, 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 text 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	SW-05	NNJ13HA01C

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)*
	SMA-06 Problem Reporting and Corrective Action TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

NPR 7150.2, NASA Software Engineering Requirements
NASA-STD-2202-93, Software Formal Inspections Standard
NASA-STD-8719.13, NASA Software Safety Standard
NASA-STD-8739.8, Software Assurance Standard

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	12/01/2011	SW-06	NNJ13HA01C

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 EA-WI-025 GFE Flight Project Software and Firmware Development	RV-10 Flight Products Verification and Validation Plan TD-02 Preliminary Design Review (PDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Software Test Description (STD) 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 STD described in EA-WI-025 shall be provided unless specified otherwise in the Task Order. The Contractor's format shall be approved by the Task Order Manager. 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:

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	12/01/2011	SW-07	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☐ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

NPR 7150.2 NASA Software Engineering Requirements
EA-WI-025 GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

RV-10 Flight Products Verification and Validation Plan
TD-02 Preliminary Design Review (PDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The Software Test Plan (STP) 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 STP, described in EA-WI-025, shall be provided unless specified otherwise in the Task Order. The Contractor's format shall be approved by the Task Order Manager. 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:

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)	12/01/2011	SW-08	NNJ13HA01C

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)*
	TD-04 Acceptance Data Package (ADP) TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Task Order. 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:

NPR 7150.2 NASA Software Engineering Requirements
EA-WI-025 GFE Flight Project Software and Firmware Development

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	12/01/2011	TD-01	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

This data package provides objective evidence that a complete set of requirements have been identified.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023: Project Management of GFE Flight Projects

7. Interrelationships *(e.g., with other DRDs)*

Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 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 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. 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 (DRL). The SRR package shall be appended by the minutes and Review Item Dispositions (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 SRR Data Package. The RIDs serve as documentation of the agreements made during the review.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

JSC-STD-8080: Design and Procedural Standards

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	12/01/2011	TD-02	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023: Project Management of GFE Flight Products

7. Interrelationships *(e.g., with other DRDs)*

Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The contractor is required to develop engineering data and to deliver the products 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 Document, DRD SW-01.
e. Software Design Document, DRD SW-03.
f. Phase I Risk Assessment Executive Summary Report (RAESR), DRD TD-19, and supporting safety documentation.
g. Flight Products Verification and Validation Plan, DRD RV-10 (Project Requirement and Verification Document, DRD RV-04, for non-critical products).
h. Preliminary EEE Parts List and Analysis Report, 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 Order

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 JSC standard office software.

D. MAINTENANCE:

See Data Requirements List (DRL). The PDR package shall be appended by the minutes and Review Item Dispositions (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.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-03	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023: Project Management of GFE Flight Projects

7. Interrelationships *(e.g., with other DRDs)*

Other DRDs (see block 8)

8. Preparation Information *(Include complete instructions for document preparation*

A. SCOPE:

Deliver the products required for a Critical Design Review (CDR) data package as described below.

B. CONTENT:

q. Summary of the PDR Review Items Disposition that had actions to be completed by or prior to the CDR.
r. End-Item Specification, DRD RV-07.
s. Interface Control Documents, DRD RV-06.
t. Engineering Drawings and Model Files, DRD RV-08, (90% of final drawings).
u. Software Design Document, DRD SW-03.
v. Phase II Risk Assessment Executive Summary Report (RAESR), DRD TD-19, and supporting safety documentation.
w. Flight Products Verification and Validation Plan, DRD RV-10 (Project Requirement and Verification Document, DRD RV-04, for non-critical GFE).
x. EEE Parts List and Analysis Report, DRD TD-15.
y. Space Station Hardware FMEA and CIL, DRD TD-16.
z. Limited Life Items List, DRD TD-05.
aa. Flight Products Workmanship Specifications List, DRD TD-14.
bb. Contractor Unique Workmanship Specifications
cc. Summary of Waivers/Deviations Requested
dd. Engineering Analysis, DRD TD-08.
ee. Plan for the User's Guide.
ff. Summary Presentation (See EA-WI-023 for content).

C. 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.)

D. MAINTENANCE:

See Data Requirements List (DRL). The CDR package shall be appended by the minutes and Review Item Dispositions (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 CDR Data Package.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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)	12/01/2011	TD-04	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

EA-WI-023 Project Management of GFE Flight Projects
EA-WI-025 GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

TD-05 Limited Life Items List
TD-07 Flight Product User's Guide
TD-09 Flight Products Verification and Validation Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 inspection procedures for all design requirements and acceptance requirements; Certificates of Conformance; and Material Test Reports. (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. User's Guide or Systems Operating Manual for products.
u. Prepared form DD 250 for first time delivery or a copy of a previously approved DD250 showing NASA accepted the products and supporting information provided. This is the record indicating the contracted obligation for the flight products was accepted by the COTR. 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 (DRL).

E. DISTRIBUTION:
Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:
SSP 30695 Acceptance Data Package (ADP) Requirements Specifications

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	12/01/2011	TD-05	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☐ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

SSP 30234, Failure Modes and Effects Analysis and Critical Items Requirements List for Space Station

7. Interrelationships *(e.g., with other DRDs)*

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. 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.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

D. MAINTENANCE:
See Data Requirements List (DRL).

E. DISTRIBUTION:
Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-06	NNJ13HA01C

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)*
	Other DRDs (See Block 8)

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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) (DRD TD-13)

b. Flight Products Verification and Validation Plan (DRD RV-10) with Verification Matrix

c. Flight Products Verification and Validation Report (DRD TD-09) (includes the verification matrix with requirements mapped to verification data)

   1. Flight Products Qualification Report (DRD RV-14)
      - i. Engineering Analysis (DRD TD-08). Stress, thermal, EEE parts stress/de-rating, structural, off-gassing, flammability, toxicological, others specific to the product.
      - ii. Qualification Test Reports (DRD TD-11)
      - iii. Manufacturer's Data used for a verification of hazard control
      - iv. Materials Certification
      - v. Fracture Control Report and Materials Usage Agreement
      - vi. 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) (DRD TD-19) (FMEA and hazard analysis)

e. Waivers, deviations and NCRs

f. Discrepancy Reports and Problem Closure Reports Relevant to Certification

g. Limited Life Items List (DRD TD-05)

h. Engineering Drawings and Model Files (DRD 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 (DRD 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:

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

EA-WI-023: Project Management of GFE Flight Projects
EA-WI-025: GFE Flight Project Software and Firmware Development

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	12/01/2011	TD-07	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

To provide all necessary information on how the flight product or ground support product is to be operated, serviced and maintained.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023: Project Management of GFE Flight Products
EA-WI-025: GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

TD-04 Acceptance Data Package (ADP)

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 Pro-E 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-08	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023: Project Management of GFE Flight Projects
EA-WI-025: GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

TD-02 PDR Data Package
TD-03 Flight Product CDR Data Package
TD-06 Certification Data Package
TD-19 Risk Assessment Executive Summary Report (RAESR)

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 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
   a. off-gassing,
   b. corrosion,
   c. flammability,
   d. toxicity,
   e. performance,
   f. life
10. Software Classification Assessment (Form JF 1704)
11. Code Assessment and Peer Reviews
12. Software Timing Analysis
13. Safety
    a. Hazard,
    b. Operability,
    c. 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.

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

C. FORMAT:

Format for reporting will be specified in the Task 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. **APPLICABLE DOCUMENTS:**

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	12/01/2011	TD-09	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☒ Technical
- ☐ Administrative
- ☐ SR&QA

6. References *(Optional)*

EA-WI-023: Project Management of GFE Flight Projects
EA-WI-025: GFE Flight Project Software and Firmware Development

7. Interrelationships *(e.g., with other DRDs)*

RV-08 Engineering Drawings and Model Files
RV-10 Flight Product V&V Plan
RV-14 Flight Products Qualification Report
SW-03 Software Design Documents
SW-04 Software Code
TD-04 Acceptance Data Package
TD-06 Certification Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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, 4) test, or 5) 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 Software Design Documents DRD (SW-03). Engineering Analysis uses the format defined in the Engineering Analysis DRD (TD-08). The V&V Report shall contain the Qualification Report DRD (RV-14) and Acceptance Data Package DRD (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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-10	NNJ13HA01C

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)*

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

The report shall consist of the Reliability and Maintainability predictions for Space Station flight hardware for: components failure rate data for end items; Mean Maintenance Crewhours per Year (MMCH/Y) predictions, for on-orbit maintainable equipment, as required; quantitative status of R&M characteristics of Space Station functions, capabilities and equipment and Failure Detection, Isolation, and Recovery (FDIR) assessment data.

B. CONTENT:

The report shall consist of two 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.

Volume I

1) General and programmatic information
2) Top-level ground rules and assumptions used in performing the R&M analyses.

Volume II

1) R&M source data in accordance with Table 1. (For simple, non-complex items that are not integrated into ISS vehicle systems, only the data elements with an asterisk are required.)
2) Failure Detection Isolation and Recovery Assessment Information (see Table 2).
3) Perform Preventive Maintenance Assessment per decision matrix (see Figure 1).

<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.

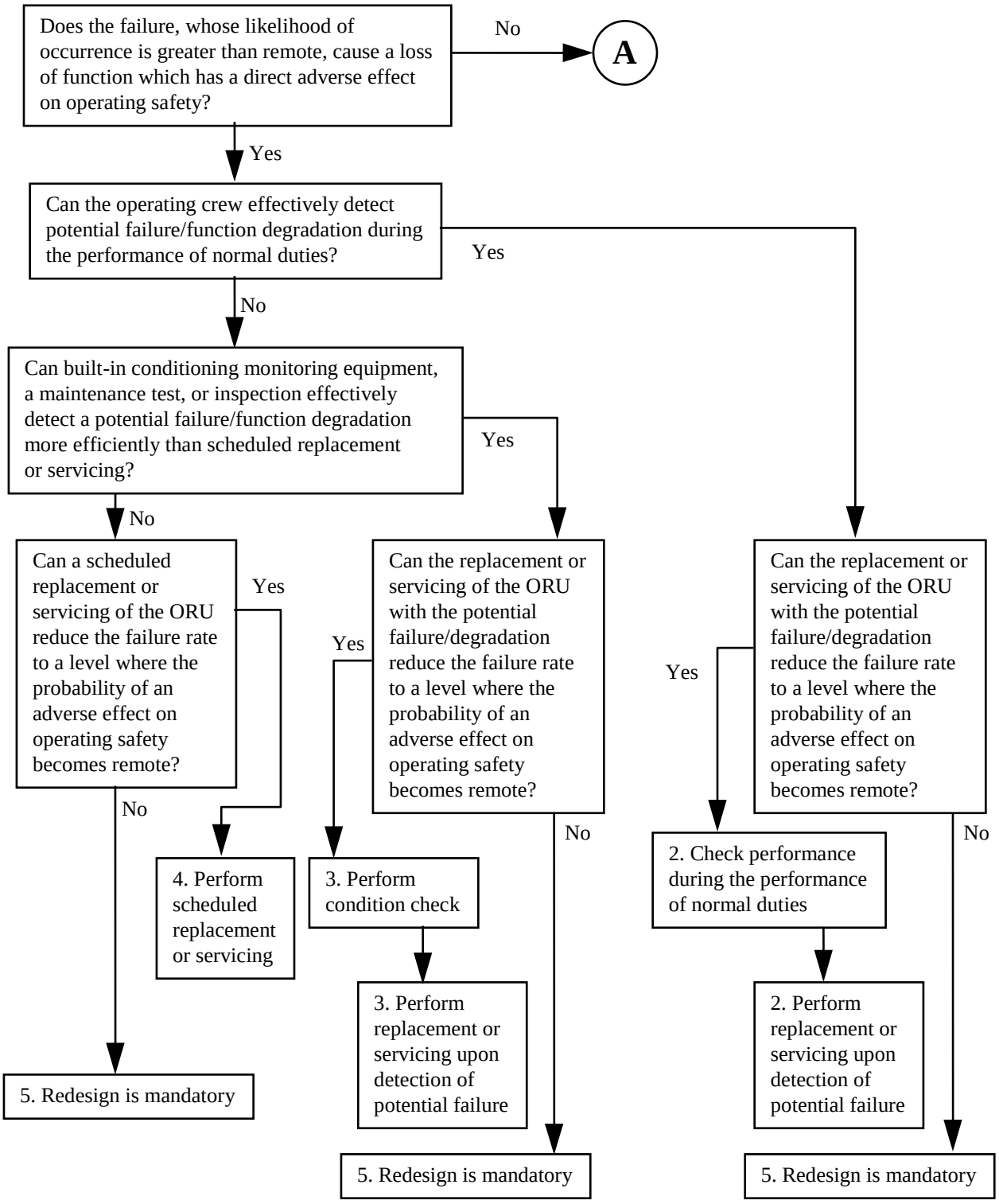

Figure 1 – Preventive Maintenance Decision Matrix

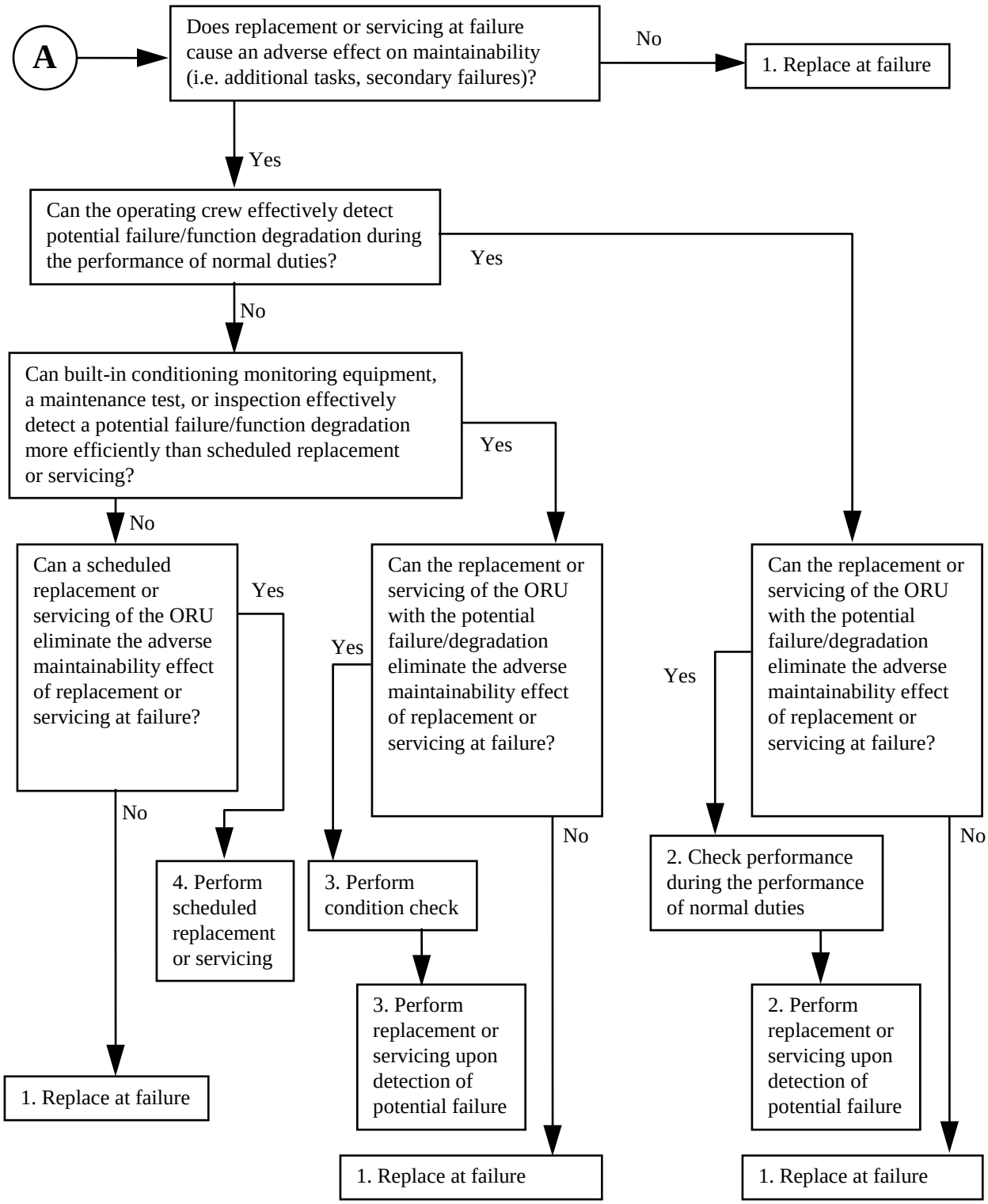

Figure 1 – Preventive Maintenance Decision Matrix - Continued

TABLE 1: R&M SOURCE DATA FIELD DEFINITION TABLE

Col	DESCRIPTION
A.	Drawing/Part Number* – Drawing/Part number in the Vehicle Master Data Base (VMDB).
B.	SRU Map* – Maps SRUs to their ORUs.
C.	Item Name* – R&M attributes shall be entered for each item which is to be maintained on orbit. The VMDB nomenclature shall be used for all R&M reporting.
D.	Location installed*
E.	Flight Manifested*
F.	Flight Activated*
G.	Hardware Criticality*
H.	Assembly Duty Cycle
I.	Operational Duty Cycle
J.	Assembly Complete Duty Cycle
K.	Dormant Failure Rate
L.	EVA or IVA Mean Time To Repair (MTTR) Mean Time to Repair – Nominal elapsed crew hours at the worksite. The MTTR includes remove, replace and fault detection time. Computed for zero-g using task standards.
M.	EVA or IVA Overhead Time
N.	IVA mean time to repair for an EVA task
O.	IVA Overhead Time for an EVA task
P.	SPDM/SSRMS mean time to repair
Q.	SPDM Overhead Time
R.	EVA, 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 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.

S.	System*
T.	Function* – Identify the function supported by the ORU.
U.	Developer
V.	*Reserved*
W.	*Reserved*
X.	*Reserved*
Y.	*Reserved*
Z.	*Reserved*
AA.	Predicted Mean Time Between Failures (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).

AB. Operational Mean time between failures (Calculated)

AC. MTBF Upper Bound

AD. MTBF Lower Bound

AE. Predicted Limited 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. Wearout 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 wearout life as the time when 63 percent of a population would have failed due to wearout/aging conditions alone. Minimum design life shall not be reported as the wearout life. No life limit should be reported if the expected wearout life is 20 years or greater.

AF. Operational Limited Life

AG. Life Beta

AH. Located internal (0), external (1)

AI. External crew size for corrective maintenance

AJ. Internal crew size for corrective maintenance

AK. *Reserved*

AL. TypeName – Reliability classification. The six reliability class codes are as follows:

CODE	DESCRIPTION
Electronic	Equipment that primarily contains digital or low power analog electronics. Moving parts are high power electrical equipment that normally constitute 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).
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.
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.
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.
Structural with Crew Contact	Equipment that is primarily structural but encounters planned crew contact or provides equipment protection. This type specifically includes doors, covers, panels, hatches, micro meteoroid/debris shields, and thermal blankets.
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.

AM. Predicted Kfactor

AN. Operational Kfactor

AO. Remove and Replace PM frequency - 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 wearout (life limits).

AP. Remove and Replace PM time*

AQ. Remove and Replace PM crew size*

AR. Remove and Replace PM overhead time

AS. Servicing and Inspect PM frequency 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.

AT. Servicing and Inspect PM time*
AU. Servicing and Inspect PM crew size*
AV. Servicing and Inspect PM overhead time
AW. *Reserved*
AX. *Reserved*
AY. Flight Quantity*
AZ. Old Part Number
BA. Integrator
BB. Old Part Name
BC. OEM Name
BD. ORU – Identifies if the item is an ORU or SRU
BE. Comments

TABLE 2: FAILURE DETECTION DATA DEFINITION TABLE

Description	Definition
Function	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 failure mode as identified in the FMEA.
Cat/Crit 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 **A**utomatic, **M**anual or **N**o 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 **A**utomatic, **M**anual or **N**o 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.

C. FORMAT:
R&M Source Data fields in Table 1 shall be submitted in an electronic table compatible with Microsoft Excel. Volume I and Volume II shall be submitted in a document 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.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-11	NNJ13HA01C

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. SCOPE:

This report consists of test data analysis and results.

B. CONTENT:

Test report shall 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
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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-12	NNJ13HA01C

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. 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 and Acceptance Report shall serve as the basis for Contractor communication with NASA documenting the contractual delivery of products required by the respective Task Order. NASA approval of the Delivery and Acceptance Report constitutes NASA acceptance of the products.

B. CONTENT:

The Delivery and Acceptance Report shall include as a minimum the following:

1. List of the products delivered to the NASA specific electronic environment
2. Associated Task 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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)	12/01/2011	TD-13	NNJ13HA01C

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-06 Certification Data Package TD-19 Risk Assessment Executive Summary Report (RAESR)

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-14	NNJ13HA01C

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 Flight Product Critical Design Review (CDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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. This list of workmanship specifications shall not replace or be used in lieu of those workmanship specifications (standards) specified in Attachment J-24.

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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-15	NNJ13HA01C

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. 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: Flight Product 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 rationale 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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 and Effects Analysis (FMEA) and Critical Items List (CIL)	12/01/2011	TD-16	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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.

5. DRD Category: *(check one)*

- ☐ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

7. Interrelationships *(e.g., with other DRDs)*

TD-03 Flight Product Critical Design Review (CDR) Data Package
TD-10 Space Station Reliability and Maintainability Predictions Report
TD-18 Space Station Hazard Reports
TD-19 Risk Assessment Executive Summary Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. SCOPE:

FMEA/CILs shall be documented for flight products (including Flight Support Equipment), Ground Support Equipment (GSE), and Payloads

B. CONTENT:

The data provided shall, as a minimum, contain the data elements specified in SSP 30234, Appendix C for flight hardware, Appendix D for GSE, or Appendix E for Payloads.

C. FORMAT:

FMEA worksheets shall be delivered electronically. The format may be Microsoft Word, Microsoft Excel, or delineated American Standard Code for Information Interchange (ASCII) file compatible with JSC standard office software loads. The electronic data shall be delivered to the Design Data Management System (DDMS).

D. MAINTENANCE:

See Data Requirements List (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. 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

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	12/01/2011	TD-17	NNJ13HA01C

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 Organization in documenting compliance with the payload safety requirements	☐ Technical ☐ Administrative ☒ SR&QA

6. References *(Optional)*	**7. Interrelationships** *(e.g., with other DRDs)*
	TD-03 Flilght Product Critical Design Review (CDR) Data Package TD-18 Space Station Hazard Reports

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 SSP 30599 Appendix J.

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 (DRL). This data shall be maintained in the DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

SSP 30599 Safety Review Process

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)	12/01/2011	TD-18	NNJ13HA01C

4. Use *(Define need for, intended use of, and/or anticipated results of data)*

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 cause, control, and verification.

5. DRD Category: *(check one)*

- ☐ Technical
- ☐ Administrative
- ☒ SR&QA

6. References *(Optional)*

7. Interrelationships *(e.g., with other DRDs)*

TD-06 Certification Data Package
TD-16 Space Station Hardware FMEA and CIL
TD-19 Risk Assessment Executive Summary Report

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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: Safety Review Process. 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 at KSC, and the operations to process the flight product at KSC.

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 (DRL). As required. Any updates shall be made in DDMS.

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. 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

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

Appendix A
Unique Hazard Report Format

TEAM NAME
International Space Station
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

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)

_____ _____
NASA Manager, Space Station Program Date

JSC DATA REQUIREMENTS DESCRIPTION (DRD)

(Based on JSC-STD-123. See work page for instructions.)

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

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	12/01/2011	TD-19	NNJ13HA01C

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	TD-06 Certification Data Package TD-08 Engineering Analysis TD-13 Government Certification and Approval Request (GCAR) TD-16 Space Station Failure Modes and Effects Analysis and Critical Items List TD-18 Space Station Hazard Reports

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. 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 List Requirements 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)
Non-Conformance Record (NCR)	12/01/2011	TD-20	NNJ13HA01C

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-06 Problem Reporting and Corrective Action (PRACA) for the JSC/Government Furnished Equipment (GFE) and Flight Products

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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.

B. CONTENT:

The NCR shall contain the following data elements:

1. A unique and traceable number for each non-conformance
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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. **APPLICABLE DOCUMENTS:**

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	12/01/2011	TD-21	NNJ13HA01C

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 Requirements for Johnson Space Center Government Furnished Equipment	SMA-06 Problem Reporting and Corrective Action (PRACA) for the JSC/Government Furnished Equipment (GFE) and Flight Products

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. APPLICABLE DOCUMENTS:

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	12/01/2011	TD-22	NNJ13HA01C

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: Configuration Management for Government Furnished Equipment	TD-03: Flight Product Critical Design Review (CDR) Data Package

8. Preparation Information *(Include complete instructions for document preparation)*

A. 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 (DRL).

E. DISTRIBUTION:

Distribution shall be in accordance with the DRL.

F. **APPLICABLE DOCUMENTS:**