

ATTACHMENT J-1
Statement of Work
For
PROPULSION SYTEMS DEPARTMENT
Propulsion Detailed Design

1.0 Scope

The Contractor shall provide specialized engineering support to the Marshall Space Flight Center (MSFC) Engineering Directorate including, but not limited to, the Propulsion Detailed Design Branch. The contractor shall provide design engineering expertise for the analysis, design, fabrication, test, anomaly resolution, and evaluation of propulsion components, subsystems, and systems including specialty areas such as geometric dimensioning and tolerancing, computer aided design and modeling tools, state of the art manufacturing and fabrication processes, specialty hardware and fasteners, bolted joint design, fits and interfaces, technical specifications, instructions and procedures, and design for optimization of component performance in relation to mission environments through testing to the various launch vehicle elements. This includes, but not limited to, detail design of propulsion components, subsystems and systems including turbomachinery, combustion devices, valves, lines, ducts, actuators, and propulsion ground support equipment to the various launch vehicle elements.

2.0 Task Order Management and Reporting

A. Contractor Management

The Contractor shall provide the planning, coordination, technical direction, and surveillance of the activities necessary to assure disciplined performance of work and timely application of resources for the accomplishment of all tasks issued under the order. The Contractor shall be responsible for maintaining communication with each supported organization and alerting the Contracting Specialist immediately of any problems that would prevent meeting established milestones.

B. Data Requirements Descriptions (DRDs)

The contractor shall report and document this work and fulfill the requirements of associated Data Requirement Descriptions (DRD's) as outlined in Data Procurement Document (DPD) 1168 (Attachment J-2). The contractor shall determine the data restriction that applies to each data deliverable and mark or transmit the data restriction in accordance with section 2.3.3 of the Data Procurement Document.

1. The Contractor shall submit a Monthly Status Report in accordance with DRD 1168MA-003. Any presentation, reports, analyses or technical memorandum that is developed during the execution shall be pre-coordinated with the task order lead and final copies provided to the task order lead.

The Contractor shall provide NASA with necessary information on project progress to allow the Government to monitor product assurance, identify significant problems, and implement corrective action as applicable based on the Contractor's performance.

- The Contractor shall develop and maintain a Work Breakdown Structure (WBS) defining all task elements contained in this Task Order and in accordance with established GSA rates per hours worked.
2. The Contractor shall submit a Badged Employee and Remote IT User Listing in accordance with DRD 1168MA-001.
 3. The Contractor shall submit a Contractor Employee Clearance Document in accordance with DRD 1168MA-002.
 4. The Contractor shall submit a Position Risk Designation for Non-NASA Employees in accordance with DRD 1168MA-004.
 5. The contractor shall submit a Contract Information Technology Security Program Plan (CITSPP) that documents how the contractor will be responsible for information and IT security in accordance with DRD 1168CD-001.
 6. The contractor shall establish and implement an industrial safety, occupational health, and environmental program and provide a signed Safety, Health, and Environmental (SHE) Work Agreement in accordance with DRD 1168SA-001.

3.0 Technical Requirements

The contractor shall be responsible for information and information technology (IT) security when physical or electronic access to NASA's computer systems, networks, or IT infrastructure is required or when NASA information is stored, processed, generated or exchanged with NASA or on behalf of NASA, regardless of where the information resides.

All data files and reports electronically delivered shall comply with Technical Standard 1194.21 of the Rehabilitation Act of 1973, Section 508.

Tasks shall be defined as follows:

3.1 Main Propulsion Systems Project Management – Closed June 2010

Planning, preparing, conducting, and publishing minutes and action items for team meetings, technical interchange meetings, telecons, design reviews, safety reviews, monthly status reviews, and quarterly status reviews to management.

Preparing, presenting, and submitting progress reports as required by the Order.

Tracking actions related to the project and providing assistance toward their closure.

Provide management support to the Main Propulsion System Integrated Product Team by:

1. Documenting IPT and component development team meeting minutes.
2. Tracking IPT action items and deliverables including gathering action item status prior to weekly IPT meetings.
3. Structures and Thermal IPT gatekeeper for document reviews utilizing Windchill keeping track of what documents need to be reviewed, by when, and by whom. May be required to integrate comments from multiple IPT members for submittal of document reviews.
4. Integration of a variety of Structures and Thermal documents and inputs to documents, including design, databooks, and development plans, etc.
5. Work with engineering lead to develop test plans for structures and thermal test articles.
6. Ensure project risks are documented including risk assessments, definition of risk mitigation plans, and tracking of mitigation plans.

3.2 US MPS Liquid Oxygen System – Closed June 2010

The contractor shall utilize architectural concepts to define detail components requirements of propulsion systems including but not limited to the Liquid Oxygen System for the various Ares vehicle elements.

The contractor shall utilize the Pro Engineer computer-aided design tool to translate architectural concepts into detailed designs for propulsion systems including but not limited to the Liquid Oxygen System for the various Ares vehicle elements.

The contractor shall provide specialized conceptual development and design of the MPS Liquid Oxygen System for the various Ares vehicle elements components by performing trade studies and supporting the development of computer models, technical reports, and other miscellaneous products associated with day-to-day team activities.

The contractor shall assist the project and IPT leaders with specialized engineering and testing tasks, milestones and product planning to meet the project overall schedules and planning. The contractor shall provide specialized support at test planning and test readiness reviews. The contractor shall support test data reviews and test analysis.

The contractor shall use prior program experience to identify necessary tasks and products required for successful development and certification of the propulsion components for the various Ares vehicle elements. The contractor shall assist the government in the formulation and planning of specialized development, verification and certification plans for human-rated propulsion systems.

3.3 US MPS Liquid Hydrogen System – Closed June 2010

The contractor shall utilize architectural concepts to define detail components requirements of propulsion systems including but not limited to the Liquid Hydrogen System for the various Ares vehicle elements.

The contractor shall utilize the Pro Engineer computer-aided design tool to translate architectural concepts into detailed designs for propulsion systems including but not limited to the Liquid Hydrogen System for the various Ares vehicle elements.

The contractor shall provide specialized conceptual development and design of the MPS Liquid Hydrogen System for the various Ares vehicle elements components by performing trade studies and supporting the development of computer models, technical reports, and other miscellaneous products associated with day-to-day team activities.

The contractor shall assist the project and IPT leaders with specialized engineering and testing tasks, milestones and product planning to meet the project overall schedules and planning. The contractor shall provide specialized support at test planning and test readiness reviews. The contractor shall support test data reviews and test analysis.

The contractor shall use prior program experience to identify necessary tasks and products required for successful development and certification of the propulsion components for the various Ares vehicle elements. The contractor shall assist the government in the formulation and planning of specialized development, verification and certification plans for human-rated propulsion systems

3.4 US MPS Pressurization System

The contractor shall utilize architectural concepts to define detail components requirements of propulsion systems including but not limited to the MPS Pressurization System for the various Ares vehicle elements.

The contractor shall utilize the Pro Engineer computer-aided design tool to translate architectural concepts into detailed designs for propulsion systems including but not limited to the MPS Pressurization System for the various Ares vehicle elements.

The contractor shall provide specialized conceptual development and design of the MPS Pressurization System for the various Ares vehicle elements components by performing trade studies and supporting the development of computer models, technical reports, and other miscellaneous products associated with day-to-day team activities.

The contractor shall assist the project and IPT leaders with specialized engineering and testing tasks, milestones and product planning to meet the project overall schedules and planning. The contractor shall provide specialized support at test planning and test readiness reviews. The contractor shall support test data reviews and test analysis.

The contractor shall use prior program experience to identify necessary tasks and products required for successful development and certification of the propulsion components for the various Ares vehicle elements. The contractor shall assist the

government in the formulation and planning of specialized development, verification and certification plans for human-rated propulsion systems

3.5 US MPS Engine (J-2X) System – Closed April 2009

The contractor shall utilize architectural concepts to define detail components requirements of propulsion systems including but not limited to the Liquid Oxygen System for the various Ares vehicle elements.

The contractor shall utilize the Pro Engineer computer-aided design tool to translate architectural concepts into detailed designs for propulsion systems including but not limited to the MPS Engine (J2-x) System for the various Ares vehicle elements.

The contractor shall provide specialized conceptual development and design of the MPS Engine (J2-x) System for the various Ares vehicle elements components by performing trade studies and supporting the development of computer models, technical reports, and other miscellaneous products associated with day-to-day team activities.

The contractor shall assist the project and IPT leaders with specialized engineering and testing tasks, milestones and product planning to meet the project overall schedules and planning. The contractor shall provide specialized support at test planning and test readiness reviews. The contractor shall support test data reviews and test analysis.

The contractor shall use prior program experience to identify necessary tasks and products required for successful development and certification of the propulsion components for the various Ares vehicle elements. The contractor shall assist the government in the formulation and planning of specialized development, verification and certification plans for human-rated propulsion systems

3.6 Upper Stage – Stage Definition Systems Engineering Support – Closed June 2010

3.7 Upper Stage Reaction Control System – Closed June 2010

3.8 Upper Stage Roll Control System – Closed June 2010

3.9 NASA MSFC Propulsion Component Design Support
(Authorization to proceed with this subtask will be provided by the Contracting Officer in written direction.)

The contractor shall provide design engineering expertise for the analysis, design, fabrication, test, anomaly resolution, and evaluation of propulsion components, subsystems, and systems including specialty areas such as geometric dimensioning and tolerancing, computer aided design and modeling tools, state-of-the-art manufacturing and fabrication processes, specialty hardware and fasteners, bolted joint design, fits and interfaces, technical specifications, instructions and procedures,

and design for optimization of component performance in relation to mission environments through testing to the various vehicle elements.

4.0 Travel

The contractor shall travel as requested to accomplish each technical requirement. Any travel must be approved by the Contractor Officer's Technical Representative (COTR) or task order technical monitor, prior to travel.

The contractor's monthly report shall contain travel detail to include travel destination, dates of travel, number of people who traveled, and purpose of the travel.

5.0 Materials

No materials are currently required for this order. However, this may change based on the customer's requirements as directed by the Contractor Officer's Technical Representative (COTR) or task order technical monitor. Any materials being purchased must be approved by the Contracting Officer prior to purchase.

6.0 Reserved

7.0 Personnel Skill Levels

The Contractor shall provide skills at a level to perform the subtasks in this order.

8.0 Technical Milestones and Deliverables

Specified under Section 2.B of the SOW; any additional deliverables for specific subtasks are specified in Section 3.0.