

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO4-09        | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 09   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 1.5.4.8                         |                      |
| <b>Title:</b> Architectural and Engineering Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> Aeronautics</div> <div><input checked="" type="checkbox"/> Exploration</div> <div> External</div> <div> Science</div> <div><input checked="" type="checkbox"/> Space Ops</div> </div>  |                         |   |                      |
| <b>Programs Supported:</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> Aeronautics</div> <div><input checked="" type="checkbox"/> Constellation</div> <div> Science</div> <div><input checked="" type="checkbox"/> Shuttle</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> SpaceComm</div> <div><input checked="" type="checkbox"/> Station</div> <div><input checked="" type="checkbox"/> Other</div> </div> <p style="margin-left: 20px;">Other Desc: Exploration</p> |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>01/01/2009   |                         | <b>Estimated Completion Date:</b><br>09/30/2009 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Snook, Bryan            | (281) 244-0192                                  | 12/04/2008           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 12/04/2008           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 12/05/2008           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 12/16/2008           |
| Task Order Monitor   | Snook, Bryan            | (281) 244-0192                                  | 12/17/2008           |
| NASA Resource Analyst  | Webley, Grant           | (281) 483-3906                                  | 12/18/2008           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 12/18/2008           |
| NASA Contracts Officer   | Carpentier, John        | (281) 244-7254                                  | 12/18/2008           |
| <b>CO's Signature</b> _____  |                         | <b>Date</b> _____                               |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul>   |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-09 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2009   | Original |                |          |        |           |                |                                      |        |           |          |
|  |          |                |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

(b) (4)

Total Value: \$ (b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

### **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

- 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
- 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
- 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
- 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.
- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                            |                                |  |
|----------------------------|--------------------------------|--|
| 1. As required to meet 2.1 | Established within Panel forum |  |
|----------------------------|--------------------------------|--|

## **2.4MATERIAL/TRAVEL**

11 FTE OTF Support. Travel Support not to exceed 20K.

1.5 FTE SCAN Data Standards support. CCSDS travel is not to exceed 24K. Track CCSDS support separately.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO4-09 | <b>Mod:</b> |
|---|--|-------------|

FDOC-TO4-09 FDOC Total Cost Estimate: (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <u><b>2009</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>     | (b)                | (4)                        |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO4-09 | <b>Mod:</b> |
|---|--|-------------|

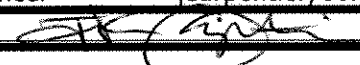
**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u> |
|-----------------------|---------------|
| 282938.09.09.10       | (b) (4)       |
| 439432.07.03.05.01    |               |
| 575376.07.01.02.01.48 |               |
| 609524.09.03.01.01.48 |               |
| <b>WBS Total:</b>     |               |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO4-10        | <b>Mod:</b><br>2     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 10   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 1.5.4.8                         |                      |
| <b>Title:</b> Architectural and Engineering Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle <input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other         Other Desc: Exploration             |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2009   |                         | <b>Estimated Completion Date:</b><br>09/30/2010 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 03/03/2010           |
| Task Order TMR   | Bishop, Larry           | (281) 483-7740                                  | 03/03/2010           |
| Task Order Division  | Sims, John              | (281) 483-2344                                  | 03/04/2010           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 03/16/2010           |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 04/05/2010           |
| NASA Resource Analyst  | Webley, Grant           | (281) 483-3906                                  | 04/06/2010           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 04/06/2010           |
| NASA Contracts Officer   | Carpentier, John        | (281) 244-7254                                  | 04/07/2010           |
| <b>CO's Signature</b>   |                         |   | <b>Date</b> 4-7-10   |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-10 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2010   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2010   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2010   | 2        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-10 | <b>Mod:</b><br>2 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

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This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

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- ? MOFD Process Automation Support
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- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

### **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

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- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

- 3.25 FTE Cx OTF Support. Travel Support not to exceed 10K.
- 3.95 FTE ISS OTF Support. Travel Support not to exceed 5K.
- 3.8 FTE SSP OTF Support. Travel Support not to exceed 5K.
- 1.5 FTE SCAN Data Standards support. Travel support not to exceed 24K.

Mod 1: \$100K material procurements

Mod 2: \$115K material procurements

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO4-10 | <b>Mod:</b><br>2 |
|---|--|------------------|

FDOC-TO4-10 FDOC Total Cost Estimate: (b) (4)

|            |             |                     |
|------------|-------------|---------------------|
| <b>FY:</b> | <u>2010</u> | <u>Grand Totals</u> |
|------------|-------------|---------------------|

|                   |     |     |
|-------------------|-----|-----|
| <b>HOURS:</b>     | (b) | (4) |
| <b>LABOR:</b>     |     |     |
| <b>ODC:</b>       |     |     |
| <b>TRAVEL:</b>    |     |     |
| <b>MATERIALS:</b> |     |     |
| <b>SUPPORT:</b>   |     |     |
| <b>G&amp;A:</b>   |     |     |
| <b>FEE:</b>       |     |     |
| <b>AMOUNT:</b>    |     |     |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO4-10 | <b>Mod:</b><br>2 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

**RESOURCE ANALYST COMMENTS**

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO7-09        | <b>Mod:</b><br>2     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 09   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> Systems Engineering Support for Reconfiguration of MCC in Support of Constellation   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> Aeronautics</div> <div><input checked="" type="checkbox"/> Exploration</div> <div> External</div> <div> Science</div> <div> Space Ops</div> </div>   |                         |   |                      |
| <b>Programs Supported:</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> Aeronautics</div> <div><input checked="" type="checkbox"/> Constellation</div> <div> Science</div> <div> Shuttle</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> SpaceComm</div> <div> Station</div> <div> Other</div> </div> <p>Other Desc:</p> |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>01/01/2009   |                         | <b>Estimated Completion Date:</b><br>09/30/2009 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Blue, Regina            | (281) 483-4229                                  | 06/01/2009           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 07/02/2009           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/02/2009           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 07/13/2009           |
| Task Order Monitor   | Blue, Regina            | (281) 483-4229                                  | 07/16/2009           |
| NASA Resource Analyst  | Webley, Grant           | (281) 483-3906                                  | 07/17/2009           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 07/17/2009           |
| NASA Contracts Officer   | Carpentier, John        | (281) 244-7254                                  | 07/17/2009           |
| <b>CO's Signature</b> _____  |                         | <b>Date</b> _____                               |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text               <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul>                                       |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO7-09 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2009   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2009   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2009   | 2        |                |          |        |           |                |                                      |        |                |          |
|  |          |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

Total Value (b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services to define, evaluate, and recommend functional, hardware, and software architectures for the Mission Control Center System (MCCS) and Constellation Training Facility (CxTF) reconfiguration needs in support of Constellation Mission Operations. Management of the work under this task order will be done under the auspices of the NASA led Mission Operations Reconfiguration System (MORS) project manager. This task will provide reconfiguration products and support to the NASA-led development of the MORS facility in the areas of project planning, systems engineering, software development, design, integration, testing, and verification. In the Cx Program (CxP), reconfiguration is defined as the end-to-end process that creates, registers, audits, transfers, receives, integrates, deploys, and applies data, software, and documentation for the purpose of configuring systems that support the CxP. Reconfiguration processes are applicable for all project phases and mission activities. The MORS Project is currently in the system definition review (SDR) phase of development (Phase A).

PP&C Modification: ( START Date: 4/1/2009)

This Task Order (TO) is also to provide cost engineering support to identify high risk mission critical components, assess cost/schedule/technical viability of requirements and interfaces, support review of system trades focusing on new platforms and system services, and provide cost and schedules risk assessments to the project.

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Material Procurement Modification (6/1/2009)

This Task Order (TO) modification is for material procurement. The content of the procurement purchase will be identified in a TIRF.

### **1.2 OBJECTIVE**

The focus of these services is on the examination of the proposed system architecture and design and the flow down to all functional elements of the system, requirements, and supporting architectures that enable reconfiguration of the MCCS to support Constellation testing, training, and flight operations as well as provide reconfiguration products for the CxTF needs. The requisite products and services must comply with CxP specifications. In addition, the services provided under this TO are intended to clarify and optimize the engineering and management processes associated with deployment of capabilities for MCCS reconfiguration and CxTF training activities.

This TO involves application of best practices in systems engineering for the purposes of streamlining and optimizing MCCS and CxTF reconfiguration needs to support Constellation. There are two areas of emphasis. The first is on the logical decomposition of processes using the baselined derivation and assessment of common infrastructure for MORS reconfiguration processing and Control Center and Training Facility space operations. The second is on demonstrating end-to-end exchange of command and telemetry between a NASA provided Constellation vehicle simulation and control center assets in a test bed environment.

It is expected that the Contractor will participate with the MORS Team and the CxP information and reconfiguration communities of interest as necessary to derive and deliver the products and services that are required to meet the objectives of this TO.

The work under this TO is expected to significantly contribute to the following products that pertain to reconfiguration of MCCS and CxTF training needs for Constellation mission operations:

- 1) MORS Statements of Capability (i.e. Level-A requirements)
- 2) MORS Statements of Functionality and Performance (i.e. Level-B requirements)
- 3) MORS Functional and System Architectures
- 4) MORS Interface Control Documents/Interface Requirements Documents
- 5) MORS Project Schedule
- 6) MORS Test bed
- 7) MORS System Engineering Management Plan
- 8) MORS Validation and Verification (V&V) Plan
- 9) MORS Risks & Mitigation/Strategy Plan

Products 1-5 document the basis and specifications, schedules, and interface requirements for the recommended functional, hardware, and software architectures that support MCCS reconfiguration and CxTF training for the CxP. Product 6 is a tool for demonstrating the viability of the recommended architectures. Product 7 documents the

process of identifying and defining a consistent systems engineering approach. Product 8 documents is the process of that software being developed will satisfy functional and other requirements (validation) and each step in the process of building the software yields the right products (verification). Product 9 documents MORS methodology/strategy on risk mitigations.

PP&C Modification: (START DATE: 4/1/2009)

The focus of these services also includes examination of the proposed system architecture and design and the flow down to all functional elements of the system, requirements, and supporting architectures to facilitate and develop cost, schedule, and risk assessments. This TO also involves the application of best practices in cost engineering for the purposes of streamlining and optimizing a robust and efficient MORS.

The added work under this TO is expected to significantly contribute to the following products that pertain to cost engineering for the MORS:

Product 10 documents the full cost analysis performed against the MORS that includes, but is not limited to ensuring technical baselines are coordinated with the cost estimates; developing specialized cost estimating relationships for specific subsystem components and identifying areas for further evaluation/improvement Product 11 documents the cost evaluation of MORS system functionality prototyping efforts.

10) MORS Cost Analysis Data Requirements (CADRe) Document

11) MORS Prototype Cost Evaluation and Report

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

The Contractor is expected to support the following activities, and provide associated products as indicated:

The Contractor shall...

- 1) Participate in MORS meetings, including but not limited to, Project management reviews, MORS prototype working groups, requirements working groups, and architecture formulation working groups.
- 2) Participate in forums sponsored by the Mission Operations Project (MOP) and various CxP communities of interest for the purpose of updating, clarifying, and optimizing processes and system definitions for MCCA & CxTF reconfiguration needs in support of Constellation.
- 3) Contribute to the generation of MORS design and requirement documentation by providing textual and graphical submission of input in accordance with MORS engineering and management processes.
- 4) Assess, make recommendations to, and maintain the MORS project schedule as required.
- 5) Assess, make recommendations to, and maintain the MORS risks and mitigation plans on a monthly basis.
- 6) Assess and make recommendations to the FY Operating Plan (FY Op Plan) and Planning, Programming, Budgeting, and Execution (PPB&E).
- 7) Draft, modify, maintain, and publish project documentation as required.
- 8) Provide a Weekly Activity Report (WAR) to the MORS Project Manager per the MORS PMP and to the COTR of the contract.
- 9) Assess, make recommendations to, and maintain the documentation of the MORS system architecture. Elements of the system architecture to be assessed, maintained, and documented shall include, but are not limited to:
  - a. Identification of all hardware and software configuration items
  - b. Identification of facility resources
  - c. Identification of internal and external interfaces
  - d. Functional architecture diagrams

The Contractor is expected to contribute to the following MORS documents from the perspective of accomplishing the MCCA & the Constellation Training Facility's (CxTF) reconfiguration objectives as described in this TO:

- a. Level A Requirements Document
- b. Level B Requirements Document
- c. Functional Architecture Document

- d. Interface Requirements Documents
- e. Systems Engineering Management Plan
- f. Risk Mitigation Plan
- g. Requirements Management Plan
- h. Validation & Verification Plan

10) Provide insight, technical expertise, and logistical support for the establishment of a MORS test bed in the Operations Technology Facility (OTF).

11) Provide guidance for development of project-level configuration management processes, particularly with respect to the execution of project-level change requests (including requirement, architecture, and design modifications).

12) Maintain and, as directed by the MORS Project Manager or his/her designee, modify the MORS Level A, B, and C Requirements in accordance with governing processes and tools.

a. Requires knowledge of CxP CM tools (i.e., Cradle)

13) Maintain and, as directed by the MORS Project Manager or his/her designee, modify the MORS-specific implementation of Systems Lifecycle Process in accordance with the governing processes.

14) Perform analysis of MOP SRD changes.

15) Perform a program integration function by gathering data from external sources such as other Constellation projects and Constellation Level II & III and assessing the relevance and applicability of the data for use in the MORS.

16) Execute Information Technology (IT) planning in accordance with the governing processes.

17) Support the formulation of computational platform specification and procurement with a goal of commonality with Mission Operations platforms

18) Assess products and make recommendations to Constellation Program Mission Operations Project (MOP) working groups in support of MORS development activities as directed by the task order manager.

19) Assess and make recommendations to the MORS Test and Verification Plan, reconciling any differences between the FDOC Facility and Systems Test and Verification Plan and the Constellation Program Mission Operations Project Master Integrated Verification Plan (MIVP).

20) Assess and make recommendations for verification of MORS requirements for Level A, B, and C requirements as well as validation of Level A requirements.

21) Create Test and Verification Procedures identified by the NASA Project Manager or his/her designee in accordance with governing processes.

22) Provide a Systems Test and Verification Report in accordance with governing processes and maintain a schedule to track activities associated with this activity.

23) Maintain and, as necessary modify, a mutually agreed-to Interface Control Documents with the MCCS in accordance the governing processes and maintain a schedule to track activities associated with this activity.

24) Maintain and, as necessary modify, a mutually agreed-to Interface Control Documents with the CxTF in accordance the governing processes and maintain a schedule to track activities associated with this activity.

25) Assess and make recommendations on the dispositions of the MORS SDR comments and RIDs.

26) Assess and make recommendations on the dispositions of the MORS PDR comments and RIDs.

These tasks may include consultation support and material acquisition services as necessary to derive, assess, and demonstrate the viability of the recommendations for MCCS and CxTF reconfiguration in support of Constellation.

The effort expected to successfully accomplish this TO is as follows:

|                   | FTE | Months | Hours |
|-------------------|-----|--------|-------|
| Original          | 5   | 9.0    | 6960  |
| SE&I Modification | 4   | 7.5    | 4640  |
| PP&C Modification | 1   | 7.5    | 1160  |

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The effort expected to successfully accomplish the PP&C modification to this TO is (1 FTE for remainder of FY09).

The effort expected to successfully accomplish the SE&I modification to this TO is (4 FTE for remainder of FY09).  
NOTE: This is a 7-month only assignment.

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Generally, the skills that are expected to ensure successful fulfillment of this task order include in-depth knowledge of general systems engineering and integration techniques and best practices. General knowledge of current control center architectures and functionality is necessary. Familiarity with web-based solutions, particularly those incorporating semantic technologies, is highly desired. The emphasis is on systems engineering, rather than expertise in reconfiguration for control center operations. Knowledge of reconfiguration processing for control center space operations is considered highly beneficial rather than critical.

Additionally, the MORS project requires unique skills set and knowledge with the CxP and programmatic reconfiguration activities. Since the methodology in performing recon services is divergent from previous Programs, simply having experience with ISS and/or SSP reconfiguration activities is insufficient to maintain MORS? forward schedule of SDR in Feb-Mar and PDR in Aug-Oct of FY09. As the MORS project is proceeding through Phase A and Phase B life cycle activities (requirements definition/decomposition and design definition), it is a requirement that MORS? personnel possess a sufficient experience base in project development/maturation activities so as to research, trade, and develop a Mission Operations? reconfiguration system that meets stringent long term programmatic cost, schedule, and performance criteria. More specifically, the MORS project includes (but is not limited to) the following skills set to ensure attainment of existing FY09 schedule milestones and long term programmatic requirements/needs:

- a) Web applications design, including web system design and human computer interface skills
- b) Knowledge of relational database design/architecture
- c) Software systems engineering with emphasis on interface design
- d) Telemetry processing design methodologies (i.e., digital telemetry)
- e) Space application design (i.e., tele-command)
- f) Software platform designs (i.e., Linux or UNIX platforms, including shell script development)
- g) Working experience with implementation of workflow applications/activities
- h) Architecture framework modeling and design applications (i.e., System Architect and DOD Architecture Framework (DODAF))
- i) Mission monitoring tools and application designs (i.e., System of Registries (SOR), Command and Control Telemetry Repository (CCTR), and the CxP Integrated Build Management System (IBMS))
- j) Experience in hazard/safety analysis of ground systems utilized in support of manned spaceflight operations
- k) Training support tool application design
- l) Strong knowledge of existing CxP, Level II, projects and project goals including System of Registries design, Command and Control Telemetry Repository (CCTR) design, and the CxP Integrated Build Management System (IBMS) design

The tasks specified in this task order require the Contractor to interact with the MORS Team and various Constellation forums. It is necessary that the Contractor examine strategies and specifications within these domains. Much of this information is Controlled, But Unclassified (SBU), in the realm of future acquisitions. Consequently, all Contractor personnel who support this TO must submit non-disclosure statements and be prohibited from participating in the proposal for acquisition of any future contracts that involve work related to this task order.

NASA recognizes the following dependencies to successful accomplishment of this TO and will facilitate provision of these needs to the Contractor:

- a) Availability of representatives from information and reconfiguration communities of interest to acquire Constellation requirements
  - b) Availability of representatives from mission operations domains to ensure compatible formulation of MORS baselines
  - c) MORS Project engineering and management procedures and guidance
  - d) NASA/JSC provided office space with standard personal computer and network access for general and administrative use.
-

PP&C Modification: (START Date: 4/1/2009)

- 26) Provide cost engineering support for systems engineering activities / trades to assess optimization of the cost/performance trade space.
- 27) Provide support to assist MORS in software cost engineering activities as the project progresses through Phase A through C milestones.
- 28) Identify high risk mission critical components and assess their impact to MORS cost and schedule. This effort will support enumeration of cost/schedule and technical risks and provide insight into the system engineering environment and related functional prototyping and trade studies pursuant to cost avoidance strategies.
- 29) Provide enumeration of cost/schedule and technical risks involving:
- a. System artifacts,
  - b. Subsystem data tree and composition
  - c. Notional functional, data & software architectures (MOP ADD)
  - d. Refining scope, defining products and services required by data consumers (ops concept)
  - e. Higher risk ? new system capability
- 30) Data fusion / association, configuration management, product distribution.
- 31) Support software development cost management activities and measure requirements jitter and complexity.
- 32) Maintaining the MORS technical baseline and CADRe document and provide update at each project milestone.
- 33) Support development of an integrated MORS cost estimate to PMR 10 activities. This shall include:
- a. Basis of Estimate (BOE) review
  - b. Cost risk analysis
  - c. Ensuring technical baselines are incorporated into the estimates
  - d. Developing format for cost estimate deliverables.
- 34) Provide engineering execution metrics that include Earned value, schedule risk analysis and reporting.

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SE&I Modification: (PERFORMANCE PERIOD: 2/9/2009 ? 9/30/2009 ONLY)

- 1) Provide Cradle management to include implementation of MORS Level A and Level B Requirements in the Cradle ensuring proper linkages and traceability to the MS SRD document.
- 2) Provide Windchill and ICE Environment Management
- 3) Provide MORS RID tool management
- 4) Provide Update MORS logistics documentation, as applicable and/or required.

## **2.2 NASA INPUT REQUIREMENTS**

The support provided under this TO shall be in compliance with the following NASA specifications:

- NASA Policy Directive (NPD) 2820.1C, NASA Software Policy
- NASA Procedural Requirements (NPR) 7120.5D, Space Flight Program and Project Management Requirements
- NASA Procedural Requirements (NPR) 7150.2, NASA Software Engineering Requirements
- NASA Procedural Requirements (NPR) 7123.1, NASA Systems Engineering Procedural Requirements
- Mission Operations Directorate (MOD) Information Technology (I/T) Management Plan, JSC-62818

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                                |                               |                     |
|--------------------------------|-------------------------------|---------------------|
| 1. As necessary to fulfill 2.1 | Per MORS scheduling processes | Supportive teamwork |
|--------------------------------|-------------------------------|---------------------|

## **2.4 MATERIAL/TRAVEL**

The following material budget is included: \$16,000.

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MODIFICATION #2:

Modification #2 to this task order adds \$53,000 to the existing material budget.

TOTAL MATERIAL BUDGET FOR THIS TO IS \$69,000.  
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This material budget is planned for acquisition of software development tools and commercial products that are identified as necessary to establish prototype MCCS and CxTF reconfiguration capabilities by way of a MORS testbed within the Operations Technology Facility (OTF). These include, but are not limited to, C, .net, or Java development environments; database management systems; Ontology editors and data stores; XML parsers and supporting utilities; and any peripheral utilities.

The following travel budget is included: \$10,000.

This travel budget is planned to accommodate 3 two-person trips within the continental United States. Travel is expected to be distributed evenly, in quarters, throughout the period of performance.

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 3.3.4, Safety and Health Management, and 1.3.2.4, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

### **4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 3.3.4, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO7-09 | <b>Mod:</b><br>2 |
|---|--|------------------|

FDOC-TO7-09 FDOC Total Cost Estimate: (b) (4)

|                 |                    |                            |
|-----------------|--------------------|----------------------------|
| <b>FY:</b>      | <b><u>2009</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>   | (b)                | (4)                        |
| <b>LABOR:</b>   |                    |                            |
| <b>ODC:</b>     |                    |                            |
| <b>TRAVEL:</b>  |                    |                            |
| <b>MATERIAL</b> |                    |                            |
| <b>SUPPORT:</b> |                    |                            |
| <b>G&amp;A:</b> |                    |                            |
| <b>FEE:</b>     |                    |                            |
| <b>AMOUNT:</b>  |                    |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO7-09 | <b>Mod:</b><br>2 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

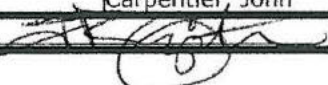
**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| 282938.02.10.10   | (b) (4)       |
| 282938.02.10.10   |               |
| <b>WBS Total:</b> |               |

Date Printed: 06/01/2010

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TOO-10          | <b>Mod:</b><br>1   |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C                |  |
| <b>GFY:</b> 10  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.2                             |  |
| <b>Title:</b> Program Requirements Document (PRD)   |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input checked="" type="checkbox"/> Exploration   | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input checked="" type="checkbox"/> Constellation | <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle                                     |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station       | <input type="checkbox"/> Other   |
| Other Desc:   |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2009  |                                      | <b>Estimated Completion Date:</b><br>09/30/2010   |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                      | <b>Date Approved</b>   |
| Task Order Monitor  | Hervey, Jewel                        | (281) 483-0359                                    | 05/03/2010   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                    | 05/05/2010   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                    | 05/05/2010   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                    | 05/14/2010   |
| Task Order Monitor  | Hervey, Jewel                        | (281) 483-0359                                    | 05/24/2010   |
| NASA Resource Analyst   | Webley, Grant                        | (281) 483-3906                                    | 06/01/2010   |
| COTR  | Lowery, James                        | (281) 483-1064                                    | 06/01/2010   |
| NASA Contracts Officer  | Carpentier, John                     | (281) 244-7254                                    | 06/01/2010   |
| <b>CO's Signature</b>    |                                      |   | <b>Date</b> 6-1-10   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO0-10 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2010   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2010   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |
| Total Value:   |          | (b) (4)        |          |        |           |                |                                      |        |                |          |

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO0-10 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide book management support of the Space Shuttle, the International Space Station and the Constellation Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Shuttle, Station and Constellation program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

#### **2.2 NASA INPUT REQUIREMENTS**

Program Requirements Document Change Requests (JSC form 50) supporting SSP-20000 Flight Vol. 1,2,3; Launch & Landing Vol. 1,2,3; and SSP-5400 ISS Orbital Vol. 1,2

Electronic book maintenance for SSP-20000 Flight Vol. 1,2,3 and SSP-5400 ISS Orbital Vol. 1

#### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                         |   |  |
|-------------------------|---|--|
| 1. 1 PRD CR per mo/EP   | Shuttle Manifest driven                           |  |
| 2. 1 PRD CR per mo/EP   | Multi-Increment Manifest Document (MIM) SSP 50110 |  |
| 3. PRD Document Updates | PIP Annex delivery +1 month                       |  |

#### **2.4 MATERIAL/TRAVEL**

4 trips (2 SSP, 1 ISS, 1 Cx). Purpose: Attend multi-center requirement issues resolution meeting.

Labor: 1,956FTEs (46% ISS/42% SSP/12% Cx)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T00-10 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T00-10 FDOC Total Cost Estimate: (b) (4)

**FY:** 2010 **Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

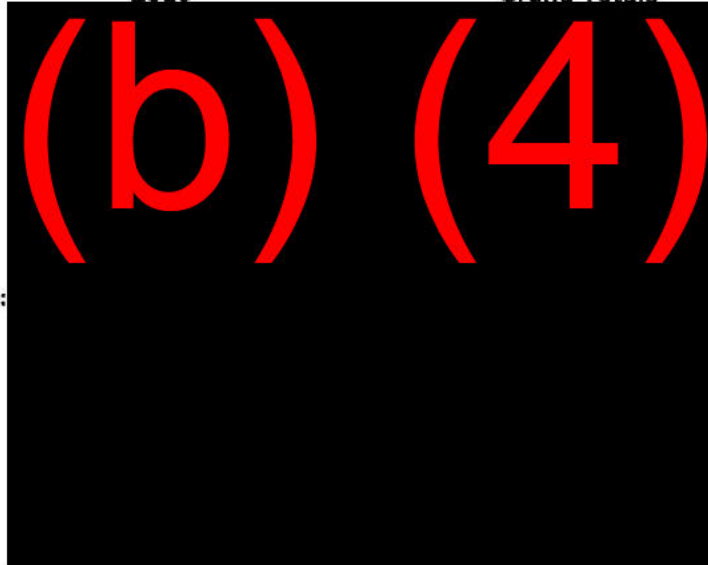
**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**



|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO0-10 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

282938.10.01.10

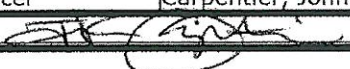
575376.07.01.02.01.49

609524.07.01.02.07.08

**WBS Total:**

(b) (4)

Date Printed: 06/02/2010

|   |   |   |  |
|---|---|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO4-10          | <b>Mod:</b><br>2   |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C                |  |
| <b>GFY:</b> 10  | <b>Multiyear:</b> No                          | <b>SOW Ref:</b> 1.5.4.8                           |  |
| <b>Title:</b> Architectural and Engineering Support   |   |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics          | <input checked="" type="checkbox"/> Exploration   | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics          | <input checked="" type="checkbox"/> Constellation | <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle                                     |
|   | <input checked="" type="checkbox"/> SpaceComm | <input checked="" type="checkbox"/> Station       | <input checked="" type="checkbox"/> Other  |
| Other Desc: Exploration   |   |   |  |
| <b>Schedule</b>   |   |   |  |
| <b>Start Date:</b><br>10/01/2009  |   | <b>Estimated Completion Date:</b><br>09/30/2010   |  |
| <b>Approvals</b>  |   |   |  |
| <b>Title</b>  | <b>Point of Contact</b>                       | <b>Phone</b>                                      | <b>Date Approved</b>   |
| Task Order Monitor  | Wolfer, Eric                                  | (281) 483-6709                                    | 03/03/2010   |
| Task Order TMR  | Bishop, Larry                                 | (281) 483-7740                                    | 03/03/2010   |
| Task Order Division   | Sims, John                                    | (281) 483-2344                                    | 03/04/2010   |
| FDOC Representative   | Beuchaw, Karen                                | (281) 283-4363                                    | 03/16/2010   |
| Task Order Monitor  | Wolfer, Eric                                  | (281) 483-6709                                    | 04/05/2010   |
| NASA Resource Analyst   | Webley, Grant                                 | (281) 483-3906                                    | 04/06/2010   |
| COTR  | Lowery, James                                 | (281) 483-1064                                    | 04/06/2010   |
| NASA Contracts Officer  | Carpentier, John                              | (281) 244-7254                                    | 04/07/2010   |
| <b>CO's Signature</b>    |   |   | <b>Date</b> 4-7-10   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-10 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2010   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2010   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2010   | 2        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-10 | <b>Mod:</b><br>2 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

### **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

- 3.25 FTE Cx OTF Support. Travel Support not to exceed 10K.
- 3.95 FTE ISS OTF Support. Travel Support not to exceed 5K.
- 3.8 FTE SSP OTF Support. Travel Support not to exceed 5K.
- 1.5 FTE SCAN Data Standards support. Travel support not to exceed 24K.

Mod 1: \$100K material procurements

Mod 2: \$115K material procurements

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

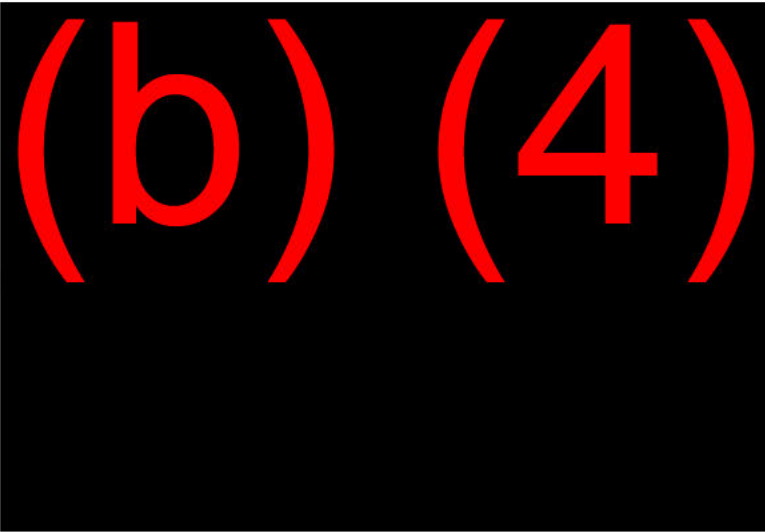
Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T04-10 | <b>Mod:</b><br>2 |
|---|--|------------------|

FDOC-T04-10 FDOC Total Cost Estimate: (b) (4)

|                  |  |                            |
|------------------|--|----------------------------|
| <b>FY:</b>       | <b><u>2010</u></b>   | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>    |  |                            |
| <b>LABOR:</b>    |  |                            |
| <b>ODC:</b>      |  |                            |
| <b>TRAVEL:</b>   |  |                            |
| <b>MATERIALS</b> |  |                            |
| <b>SUPPORT:</b>  |  |                            |
| <b>G&amp;A:</b>  |  |                            |
| <b>FEE:</b>      |  |                            |
| <b>AMOUNT:</b>   |  |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO4-10 | <b>Mod:</b><br>2 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**


**Amount**

**WBS Total:**

**(b) (4)**

**RESOURCE ANALYST COMMENTS**

Date Printed: 06/02/2010

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO4-10  | <b>Mod:</b><br>3     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 10  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 1.5.4.8   |                      |
| <b>Title:</b> Architectural and Engineering Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: Exploration |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2009  |                         | <b>Estimated Completion Date:</b><br>09/30/2010   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Snook, Bryan            | (281) 244-0192  | 04/30/2010           |
| Task Order TMR  | Bishop, Larry           | (281) 483-7740  | 04/30/2010           |
| Task Order Division   | Sims, John              | (281) 483-2344  | 04/30/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 05/10/2010           |
| Task Order Monitor  | Snook, Bryan            | (281) 244-0192  | 05/10/2010           |
| NASA Resource Analyst   | Webley, Grant           | (281) 483-3906  | 05/11/2010           |
| COTR  | Lowery, James           | (281) 483-1064  | 05/11/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254  | 05/24/2010           |
| <b>CO's Signature</b>    |                         | <b>Date</b> 5-24-10   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

[illegible]

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-10 | <b>Mod:</b><br>3 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

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This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

### **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
  - 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
  - 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
  - 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
  - 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

MOD 3: All the above work is still in scope for this TO; however, schedules will be adjusted accordingly, due to the Cx funding reduction.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

---

### **2.4 MATERIAL/TRAVEL**

- \* (see Mod 3 below) 3.25 FTE Cx OTF Support. Travel Support not to exceed 10K.
- 3.95 FTE ISS OTF Support. Travel Support not to exceed 5K.
- 3.8 FTE SSP OTF Support. Travel Support not to exceed 5K.
- 1.5 FTE SCAN Data Standards support. Travel support not to exceed 24K.

Mod 1: \$100K material procurements

Mod 2: \$115K material procurements

Mod 3: 0.62 FTE reduction to Cx per mgmt direction (Cx now 2.63 FTE).

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T04-10 | <b>Mod:</b><br>3 |
|---|--|------------------|

FDOC-T04-10 FDOC Total Cost Estimate: (b) (4)

|                   |             |                     |
|-------------------|-------------|---------------------|
| <b>FY:</b>        | <u>2010</u> | <u>Grand Totals</u> |
| <b>HOURS:</b>     | (b) (4)     |                     |
| <b>LABOR:</b>     |             |                     |
| <b>ODC:</b>       |             |                     |
| <b>TRAVEL:</b>    |             |                     |
| <b>MATERIALS:</b> |             |                     |
| <b>SUPPORT:</b>   |             |                     |
| <b>G&amp;A:</b>   |             |                     |
| <b>FEE:</b>       |             |                     |
| <b>AMOUNT:</b>    |             |                     |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T04-10 | <b>Mod:</b><br>3 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

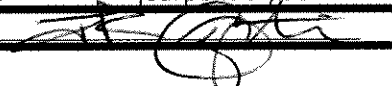
**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u>  |
|-----------------------|----------------|
| 282938.07.21.02.03.10 | <b>(b) (4)</b> |
| 439432.07.03.05.01    |                |
| 575376.07.01.02.02.08 |                |
| 609524.09.03.02.03.08 |                |

**WBS Total:**

**RESOURCE ANALYST COMMENTS**

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO6-10  | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 10  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1   |                      |
| <b>Title:</b> Systems Security Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2009  |                         | <b>Estimated Completion Date:</b><br>09/30/2010   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Snook, Bryan            | (281) 244-0192  | 04/30/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 04/30/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 04/30/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 08/26/2010           |
| Task Order Monitor  | Snook, Bryan            | (281) 244-0192  | 09/14/2010           |
| NASA Resource Analyst   | Webley, Grant           | (281) 483-3906  | 09/17/2010           |
| COTR  | Lowery, James           | (281) 483-1064  | 09/20/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254  | 09/20/2010           |
| <b>CO's Signature</b>    |                         | <b>Date</b> 9-20-10   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |             | Task Order<br>Number:<br>FDOC-TO6-10 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|-------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2010   | Original | (b) (4)        |          |        |           |             |                                      |        |                |          |
| 2010   | 1        |                |          |        |           |             |                                      |        |                |          |
| Totals:  |          |                |          |        |           |             |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) because Rev. 1 does not reflect any re-baselining based on Cx reductions, however, the Contracting Officer's signature on Rev. 1 approves a total spending authority of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

**1.2 OBJECTIVE**

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MOFD systems. Mission systems definition includes, CxTF, MCCS, SSTF, SMS, Support Systems and other systems identified by MOFD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MOFD security documents.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Provide Program level ground system security support for the ISS and Constellation MOP programs. Personnel will provide security interface both internal to MOFD and external to MOFD regarding all aspects of IT and COMSEC security, and will act on behalf of MOFD.

Provide Security Services for MOFD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the COMSEC Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MOFD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

- 1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.
- 2.) Provide leadership in prototyping proposed security controls in both OTF and GSDE systems.
- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.
- 4.) Analyze RFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.
- 5.) Prototype proposals/requirements and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

**2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MOFD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

- 1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)
- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## **2.4 MATERIAL/TRAVEL**

3.5 FTE: 1.5-ISS. 2.0-Cx. (See MOD 1 Adjustment below)

Travel support not to exceed limits as prescribed in Technical Directives.

Travel includes trips with domestic and international destinations in support of NASA programmatic requirements.

MOD 1 : Reduces Cx support by 0.68 FTE and increases ISS support by 1.15 FTE's.

3.97 FTE: 2.65-ISS. 1.32-Cx. Cx Travel support not to exceed \$3000. The hours identified in the ISS and Cx Technical Directives are incorrect and the FTE profiles identified above in the this MOD 1 are to be adhered to. The ISS Technical Directive travel is correct and should not be exceeded. The ISS and Cx Technical Directive descriptions are correct.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

**FDOC TECHNICAL DIRECTION FORM****Tech Direction Title:** Constellation - MOP IT Security**TD#:** TD001**Task Order Title:** Systems Security Engineering and Integration Support**TO#:** FDOC-TO6-10**Technical Direction Description (must be within the technical scope and authorized resources of the currently approved task):**

- 1.) Provide security engineering support for Constellation MOP Programmatic Ground Segments .
- 2.) Attend appropriate meetings in support of Constellation MOP requirements development.
- 3.) Perform Security analysis reviews and evaluations of proposed Cx control systems and systems external to the Cx Control Center, including the telecommunications systems providing connectivity between all Cx systems.
- 4.) Perform security analysis review, evaluation and comments/redlines to proposed Cx documentation.
- 5.) Develop required MOFD Constellation MOP program process and procedures as required.
- 6.) Provide reviews and updates to Cx MOP planned security incident procedures, reporting, coordination and follow-up.
- 7.) Document and provide security protection development support to the Cx MOP program, including but not limited to, security risk analysis, security requirements, security plans, security products and implementation and security test support.
- 8.) Generate and maintain documentation including program process and procedures, external organization agreement and protocols, interface control documents (ICD), security plans, technical interface meeting (TIM), working groups, development schedules, and security protection documentation.
- 9.) Review and provide comment/updates to documents for the Consultative Committee for Space Data systems as applicable to the NASA Cx MOP program and provide candidates as appropriate for prototyping for proof of concept of CCSDS standards.

This cost data is for information only. The combined total of all TD costs is shown on the FDOC cost estimate.

| <u>FY</u> | <u>Hours</u> | <u>Labor</u> | <u>ODC</u> | <u>Travel</u> | <u>Materials</u> | <u>Support</u> | <u>G&amp;A</u> | <u>Fee</u> | <u>Amount</u> |
|-----------|--------------|--------------|------------|---------------|------------------|----------------|----------------|------------|---------------|
| 2010      |              |              |            |               | (b) (4)          |                |                |            |               |

**Tech Direction Title:** ISS - IT Security**TD#:** TD002**Task Order Title:** Systems Security Engineering and Integration Support**TO#:** FDOC-TO6-10**Technical Direction Description (must be within the technical scope and authorized resources of the currently approved task):**

- 1.a.) Provide security-engineering support for International Space Station (ISS) control center and telecommunications capabilities.
- 1.b.) Provide security-engineering support for ISS International Partners as requested.
- 2.) Perform Security analysis review and evaluation of NASA and International Partner control systems and telecommunication networks providing connectivity.
- 3.) Provide review and evaluation for NASA and International Partners ground systems documentaiton and space flight documentation as required for interface to the ground systems.
- 4.) Generate and maintain documents including program process and procedures, external organization agreements and protocols, interface control documents (ICD), security plans, technical interface meeting (TIM), ground segment schedules, and security Protection documentation as required by JSC/MOD and NASA/GSCB.
- 5.) Provide oversight of ISS ComSec Facility operations, maintenance and upgrades.
- 6.) Review and provide comment/updates to documents for the Consultative Committee for Space Data systems as applicable to the NASA ISS program and provide candidates as appropriate for prototyping for proof of concept of CCSDS standards.

This cost data is for information only. The combined total of all TD costs is shown on the FDOC cost estimate.

| <u>FY</u> | <u>Hours</u> | <u>Labor</u> | <u>ODC</u> | <u>Travel</u> | <u>Materials</u> | <u>Support</u> | <u>G&amp;A</u> | <u>Fee</u> | <u>Amount</u> |
|-----------|--------------|--------------|------------|---------------|------------------|----------------|----------------|------------|---------------|
| 2010      |              |              |            |               | (b) (4)          |                |                |            |               |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO6-10 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-TO6-10 FDOC Total Cost Estimate: (b) (4)

|                  |                    |                            |
|------------------|--------------------|----------------------------|
| <b>FY:</b>       | <u><b>2010</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>    | (b) (4)            |                            |
| <b>LABOR:</b>    |                    |                            |
| <b>ODC:</b>      |                    |                            |
| <b>TRAVEL:</b>   |                    |                            |
| <b>MATERIALS</b> |                    |                            |
| <b>SUPPORT:</b>  |                    |                            |
| <b>G&amp;A:</b>  |                    |                            |
| <b>FEE:</b>      |                    |                            |
| <b>AMOUNT:</b>   |                    |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T06-10 | <b>Mod:</b><br>1 |
|---|--|------------------|


**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u> |
|-----------------------|---------------|
| 282938.01.21.01.10.10 | (b) (4)       |
| 609524.09.03.02.03.09 |               |
| <b>WBS Total:</b>     |               |

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO11-10  | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 10  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3  |                      |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of Constellation   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2009  |                         | <b>Estimated Completion Date:</b><br>09/30/2010  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Ward, Dawn              | (281) 483-6145   | 05/11/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 05/03/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 05/03/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 05/10/2010           |
| Task Order Monitor  | Ward, Dawn              | (281) 483-6145   | 05/17/2010           |
| NASA Resource Analyst   | Webley, Grant           | (281) 483-3906   | 05/17/2010           |
| COTR  | Lowery, James           | (281) 483-1064   | 05/17/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254   | 05/18/2010           |
| <b>CO's Signature</b>    |                         |  | <b>Date</b> 5-19-10  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO11-10 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$ | Fee \$         | Total \$ |
| 2010   | Original | (b) (4)        |          |        |           |                |                                       |        |                |          |
| 2010   | 1        |                |          |        |           |                |                                       |        |                |          |
| Totals:  |          |                |          |        |           |                |                                       |        |                |          |

Total Value: (b) (4)

|  |   |                  |
|--|---|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO11-10 | <b>Mod:</b><br>1 |
|--|---|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Constellation Mission Operations.

### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the Constellation Program (CxP) baseline and aid the MOP Elements (i.e. MCCA, CxTF, MORS) in remaining current with the MOP baseline.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate Cx programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Baseline Access - grant and control access to technical baseline data. This includes placing the data in a authorized but accessible location and providing the instruction needed to allow users efficient access.

b.) Ensure technical baseline compliance to Programmatic constraints

1. MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the CxP-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

c.) Scheduling of technical baseline

Generate and maintain CxP-to-MOP-to-Element dependencies schedules and provide scheduling data inputs to the MOP Integrated Master Schedule. Review and update Element schedule data to the IMS.

d.) Technical Baseline Risk Management

Risk Management for those Risks that are a result of threats to the Technical baseline. Includes maintenance of the Risks in IRMA

2.) Provide Cradle Support

a) Provide Level II ASET participation for determining Cradle schema change impacts to the MOP, advocating MOP needs and proposed schema updates, representing MOP interests in ASET technical forums.

b) Perform Level III (i.e. MOP) Cradle management, including production and CM of Cradle developed MOP products (e.g. System requirements, Operations Concepts, Architecture Designs, Interface requirements;) schema tailoring and administration for MS segment of Cradle.

c) Create and maintain (including linkages and data item descriptions) data in Cradle used to define the MOP technical baseline.

d) Support MOP Elements (i.e. MCCA, CxTF, MORS) in development and maintenance of Cradle schema, publication templates, and data promotion.

3.) Provide Technical Forum Support

a.) Provide technical support to the CxP and MOP/ MOD forums (e.g. MOFD CCB, MEICB, ICP, CxRWG, MWG) that

make system engineering evaluations and decisions.

b.) Provide technical and administrative support to the MOP Working Group (MWG.)

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

MOD 1 reduce FTEs to accommodate MOP funding reduction

## **2.2 NASA INPUT REQUIREMENTS**

- Access to Cradle tool and training

- Access to all MOP-level requirements and design documentation

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

---

### **2.4 MATERIAL/TRAVEL**

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

3 FTE are required to perform this task

reduce to 2.449 FTEs to accommodate MOP funding reduction

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

## **4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO11-10 FDOC Total Cost Estimate: (b) (4)

**FY:**

**2010**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |   |                  |
|---|---|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO11-10 | <b>Mod:</b><br>1 |
|---|---|------------------|

**NASA RESOURCES GENERAL INFORMATON**


**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u> |
|-----------------------|---------------|
| 282938.01.21.01.11.10 | (b) (4)       |
| <b>WBS Total:</b>     |               |

Date Printed: 10/01/2010

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T00-11  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2   |                      |
| <b>Title:</b> Program Requirements Document (PRD)   |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2010  |                         | <b>Estimated Completion Date:</b><br>09/30/2011   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359  | 08/06/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 08/06/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 08/06/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 09/10/2010           |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359  | 09/10/2010           |
| NASA Resource Analyst   | Stewart, Bradley        | (281) 483-0356  | 09/30/2010           |
| COTR  | Lowery, James           | (281) 483-1064  | 09/30/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254  | 09/30/2010           |
| <b>CO's Signature</b>    |                         | <b>Date</b> 10-1-10   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO0-11 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-T00-11 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide book management support of the Space Shuttle and the International Space Station Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Shuttle and Station program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

#### **2.2 NASA INPUT REQUIREMENTS**

Program Requirements Document Change Requests (JSC form 50) supporting SSP Ops Flight PRD, Volumes I,II; Launch & Landing Vol. I,II,III; and ISS Orbital Volume I,II  
Electronic book maintenance for SSP Ops Flight PRD, Volumes I,II; Launch & Landing Vol. I,II,III; and ISS Orbital Volume I,II

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                         |   |  |
|-------------------------|---|--|
| 1. 1 PRD CR per mo/EP   | Shuttle Manifest driven                           |  |
| 2. 1 PRD CR per mo/EP   | Multi-Increment Manifest Document (MIM) SSP 50110 |  |
| 3. PRD Document Updates | PIP Annex delivery +1 month                       |  |

### **2.4 MATERIAL/TRAVEL**

2 trips (1 SSP, 1 ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (October - July 20th, SSP - 25%; ISS - 75%; July 21st, - September, ISS 100%)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|  |                                   |      |
|--|-----------------------------------|------|
| Facilities Development and Operations Contract<br>FDOC Cost Estimate | Task Order Number:<br>FDOC-T00-11 | Mod: |
|--|-----------------------------------|------|

FDOC-T00-11 FDOC Total Cost Estimate: (b) (4)

|  |             |                     |
|--|-------------|---------------------|
|  | <u>2011</u> | <u>Grand Totals</u> |
|--|-------------|---------------------|

HOURS:

LABOR:

ODC:

TRAVEL:

MATERIALS:

SUPPORT:

G&A:

FEE:

AMOUNT:

|     |     |
|-----|-----|
| (b) | (4) |
|-----|-----|

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T00-11 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO


**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO01-11  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1.2  |                      |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2010  |                         | <b>Estimated Completion Date:</b><br>09/30/2011  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 08/05/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 08/06/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 08/06/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 09/10/2010           |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 09/10/2010           |
| NASA Resource Analyst   | Stewart, Bradley        | (281) 483-0356   | 09/30/2010           |
| COTR  | Lowery, James           | (281) 483-1064   | 09/30/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254   | 09/30/2010           |
| <b>CO's Signature</b>    |                         | <b>Date</b> 10-1-10  |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO01-11 | Revision: |        |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|-----------|--------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$    | Fee \$ | Total \$ |
| 2011   | Original |                |          |        |           |                |                                       |           |        |          |
| <b>Totals:</b>   |          |                |          |        |           |                |                                       |           |        |          |

(b) (4)

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO01-11 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide Support to the International Space Station Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS ground-to-ground communications requirements.

### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station program tasks delegated to MOD to execute on behalf of the ISS program. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS operational support among all elements that support the ISS Programs
- Gather and consolidate communications requirements into draft versions of the NPRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS Program on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS Program communications requirements
- Document final, approved version of ISS communications requirements in the NPRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS Program
- Support other ISS operational communications related tasks as required by NASA

### **2.2 NASA INPUT REQUIREMENTS**

Network Program Requirement Document (NPRD) - SSP - 54001

International Space Station Operational Communication Overview (IOCO)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|  |                            |  |
|--|----------------------------|--|
| 1. Multi-Increment Manifest Document (MIM) SSP 50110 | As needed per the manifest |  |
|--|----------------------------|--|

### **2.4 MATERIAL/TRAVEL**

7 trips (Domestic - 6, International - 1)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

Labor: 1 FTE (ISS)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |   |             |
|---|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO01-11 | <b>Mod:</b> |
|---|---|-------------|

FDOC-TO01-11 FDOC Total Cost Estimate: (b) (4)

FY: 2011 Grand Totals

HOURS:

LABOR:

ODC:

TRAVEL:

MATERIALS:

SUPPORT:

G&A:

FEE:

AMOUNT:

(b) (4)

|  |                                    |      |
|--|------------------------------------|------|
| Facilities Development and Operations Contract<br>Estimated NASA Resources Summary | Task Order Number:<br>FDOC-T001-11 | Mod: |
|--|------------------------------------|------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO


**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |   |   |  |
|---|---|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO2-11          | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C                |  |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No                          | <b>SOW Ref:</b> 3.3.3                             |  |
| <b>Title:</b> Human Space Flight Network Operations Integration   |   |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics          | <input checked="" type="checkbox"/> Exploration   | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics          | <input checked="" type="checkbox"/> Constellation | <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle                                     |
|   | <input checked="" type="checkbox"/> SpaceComm | <input checked="" type="checkbox"/> Station       | <input checked="" type="checkbox"/> Other  |
| Other Desc:   |   |   |  |
| <b>Schedule</b>   |   |   |  |
| <b>Start Date:</b><br>10/01/2010  |   | <b>Estimated Completion Date:</b><br>09/30/2011   |  |
| <b>Approvals</b>  |   |   |  |
| <b>Title</b>  | <b>Point of Contact</b>                       | <b>Phone</b>                                      | <b>Date Approved</b>   |
| Task Order Monitor  | Hervey, Jewel                                 | (281) 483-0359                                    | 08/06/2010   |
| Task Order TMR  | Macha, Mitchell                               | (281) 483-7059                                    | 08/13/2010   |
| Task Order Division   | Lindner, Daniel                               | (281) 483-3885                                    | 08/13/2010   |
| FDOC Representative   | Beuchaw, Karen                                | (281) 283-4363                                    | 09/13/2010   |
| Task Order Monitor  | Hervey, Jewel                                 | (281) 483-0359                                    | 09/14/2010   |
| NASA Resource Analyst   | Stewart, Bradley                              | (281) 483-0356                                    | 09/30/2010   |
| COTR  | Lowery, James                                 | (281) 483-1064                                    | 09/30/2010   |
| NASA Contracts Officer  | Carpentier, John                              | (281) 244-7254                                    | 09/30/2010   |
| <b>CO's Signature</b>    |   | <b>Date</b> 10-1-10                               |  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T02-11 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO2-11 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the Wide Area Network, the NASA Ground Networks, and the NASA Space Network support.

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated service
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for Shuttle, Station, and Constellation communications requirements

### **2.2 NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|   |                            |  |
|---|----------------------------|--|
| 1. Engineering and Operations Assessments | As needed per the manifest |  |
| 2. Flight Readiness Assessments           | As needed per the manifest |  |
| 3. Network Interface to MCC Assessments   | As needed per the manifest |  |

### **2.4 MATERIAL/TRAVEL**

23 trips (22 domestic, 1 international)

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 4.0 FTEs (SCAN)

Travel: \$50,000

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T02-11 | <b>Mod:</b> |
|---|--|-------------|

FDOC-T02-11 FDOC Total Cost Estimate

(b) (4)

**FY:** 2011

Grand Totals

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T02-11 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

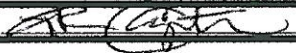
**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO4-11  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 1.5.4.8   |                      |
| <b>Title:</b> Architectural and Engineering Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: Exploration |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2010  |                         | <b>Estimated Completion Date:</b><br>09/30/2011   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Snook, Bryan            | (281) 244-0192  | 08/13/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 08/13/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 08/16/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 09/20/2010           |
| Task Order Monitor  | Snook, Bryan            | (281) 244-0192  | 09/28/2010           |
| NASA Resource Analyst   | Stewart, Bradley        | (281) 483-0356  | 09/30/2010           |
| COTR  | Lowery, James           | (281) 483-1064  | 09/30/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254  | 09/30/2010           |
| <b>CO's Signature</b>    |                         | <b>Date</b> 10-1-10   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-11 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2011   | Original |                | (b) (4)  |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-11 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

### **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
  - 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
  - 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
  - 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
  - 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

MOD 3: All the above work is still in scope for this TO; however, schedules will be adjusted accordingly, due to the Cx funding reduction.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Total ISS, SSP & NCF FTE combined for FY11 - 10

Materials not to exceed 150K (SSP/ISS). (10/1/10 - 9/30/11)

4.5 FTE ISS OTF Support. Travel Support not to exceed 9K. (10/1/10 - 9/30/11)

3.6 FTE SSP OTF Support. Travel Support not to exceed 5K. (10/1/10 - 7/20/11)

0.9 FTE ISS OTF Support. (7/21/10 - 9/30/11)

1.0 FTE SCAN Data Standards support. Travel support not to exceed 20K and materials not to exceed 5K.

NASA Capabilities Forum (NCF) support covers ISS & SSP programs support functions as needed.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T04-11 | <b>Mod:</b> |
|---|--|-------------|

FDOC-T04-11 FDOC Total Cost Estimate: (b) (4)

**FY:** 2011 Grand Totals

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

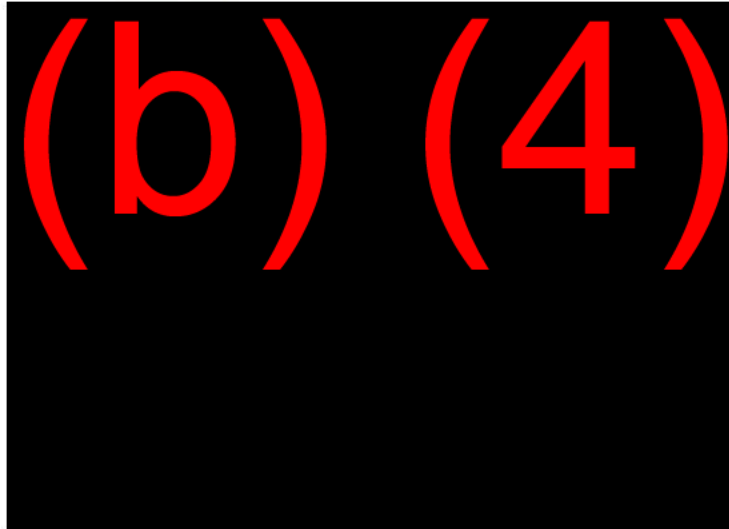
**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**



|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T04-11 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**


**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

Date Printed: 10/01/2010

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-11   | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No    | <b>SOW Ref:</b>  |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2010  |                         | <b>Estimated Completion Date:</b><br>09/30/2011  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Bauer, Angela           | (281) 483-1398   | 08/18/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 08/23/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 08/23/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 09/21/2010           |
| Task Order Monitor  | Bauer, Angela           | (281) 483-1398   | 09/21/2010           |
| NASA Resource Analyst   | Stewart, Bradley        | (281) 483-0356   | 09/30/2010           |
| COTR  | Lowery, James           | (281) 483-1064   | 09/30/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254   | 09/30/2010           |
| <b>CO's Signature</b>    |                         |  | <b>Date</b> 10-1-10  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-11 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-11 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of a Cx Mission class development cycle or ER development cycle). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (e.g. ISS, SSP, and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, USA, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. SSP, ISS, and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$40K for travel - \$20k Cx, \$10K ISS, 10K User Apps (\$7K ISS, 3K SSP). \$100k material for engineering assessments.

Hours:

MCCS/MCC21

ISS? 5 FTE

SSP ? 4 FTE (10/1/10 to 7/20/2011)

ISS ? 1.0 FTE (7/21/11 to 9/30/2011)

MCC21

Cx ? 10.0 FTE

User Apps

SSP ? 0.7 (10/1/10 to 7/20/2011)

ISS ? 0.3 (7/21/11 to 9/30/2011)

ISS ? 2.0

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO5-11 | <b>Mod:</b> |
|---|--|-------------|

FDOC-TO5-11 FDOC Total Cost Estimate: (b) (4)

|                  |   |                            |
|------------------|---|----------------------------|
| <b>FY:</b>       | <b><u>2011</u></b>  | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>    | <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="font-size: 100px; color: red;">(b)</div> <div style="font-size: 100px; color: red;">(4)</div> </div> |                            |
| <b>LABOR:</b>    |   |                            |
| <b>ODC:</b>      |   |                            |
| <b>TRAVEL:</b>   |   |                            |
| <b>MATERIALS</b> |   |                            |
| <b>SUPPORT:</b>  |   |                            |
| <b>G&amp;A:</b>  |   |                            |
| <b>FEE:</b>      |   |                            |
| <b>AMOUNT:</b>   |   |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-11 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

Date Printed: 08/16/2011

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-11   | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No    | <b>SOW Ref:</b>  |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2010  |                         | <b>Estimated Completion Date:</b><br>09/30/2011  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134   | 06/24/2011           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 07/21/2011           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 07/22/2011           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 07/26/2011           |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134   | 07/27/2011           |
| NASA Resource Analyst   | Webley, Grant           | (281) 483-3906   | 07/27/2011           |
| COTR  | Lowery, James           | (281) 483-1064   | 07/27/2011           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   |                      |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> 8/16/11  |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TOS-11 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2011   | Original | (b) (4)        |          |           |              |                |                                      |        |                |          |
| 2011   | 1        |                |          |           |              |                |                                      |        |                |          |
| Totals:  |          |                |          |           |              |                |                                      |        |                |          |

Total Value: (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-11 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of a Cx Mission class development cycle or ER development cycle). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (e.g. ISS, SSP, and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, USA, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. SSP, ISS, and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$40K for travel - \$20k Cx, \$10K ISS, 10K User Apps (\$7K ISS, 3K SSP). \$100k material for

engineering assessments.

Hours:

MCCS/MCC21

ISS? 5 FTE

SSP ? 4 FTE (10/1/10 to 8/12/2011)

ISS ? 1.0 FTE (8/13/11 to 9/30/2011)

MCC21

Cx ? 10.0 FTE

User Apps

SSP ? 0.7 (10/1/10 to 8/12/2011)

ISS ? 0.3 (8/13/11 to 9/30/2011)

ISS ? 2.0

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations<br/>Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T05-11 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T05-11 FDOC Total Cost Estimate: (b) (4)

**FY:** 2011 Grand Totals

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-11 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

282938.07.21.02.01.10

575376.07.01.02.02.03


575376.07.01.02.02.03

609524.09.03.02.03.01

609524.09.03.02.03.07

**WBS Total:**

(b) (4)

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO5-11        | <b>Mod:</b><br>2     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 11   | <b>Multiyear:</b> No    | <b>SOW Ref:</b>                                 |                      |
| <b>Title:</b> System Engineering and Integration Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other   |                         |   |                      |
| Other Desc:  |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2010   |                         | <b>Estimated Completion Date:</b><br>09/30/2011 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Melendrez, Amy          | (281) 244-1134                                  | 08/26/2011           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 08/26/2011           |
| Task Order Division  | Sims, John              | (281) 483-2344                                  | 08/26/2011           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 09/08/2011           |
| Task Order Monitor   | Melendrez, Amy          | (281) 244-1134                                  | 09/13/2011           |
| NASA Resource Analyst  | Hewett, Benjamin        | (281) 244-6604                                  | 09/15/2011           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 09/15/2011           |
| NASA Contracts Officer   | Maclean, Cynthia        | (281) 244-5903                                  | 09/16/2011           |
| <b>CO's Signature</b>   |                         |   | <b>Date</b> 9/16/11  |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-11 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2011   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2011   | 2        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

Total Value: (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-11 | <b>Mod:</b><br>2 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of a Cx Mission class development cycle or ER development cycle). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (e.g. ISS, SSP, and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, USA, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. SSP, ISS, and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

This revision adds the UA FOX Project Manager LOE support.

\$40K for travel - \$20k Cx, \$10K ISS, 10K User Apps (\$7K ISS, 3K SSP). \$100k material for engineering assessments.

Hours:

MCCS/MCC21

ISS? 5 FTE

SSP ? 4 FTE (10/1/10 to 8/12/2011)

ISS ? 1.0 FTE (8/13/11 to 9/30/2011)

MCC21

Cx ? 10.0 FTE

User Apps

SSP ? 0.7 (10/1/10 to 8/12/2011)

ISS ? 0.3 (8/13/11 to 9/30/2011)

ISS ? 2.0

ISS - 0.23 FTE support 7/11/11 thru 9/30/11 - FOX PM

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T05-11 | <b>Mod:</b><br>2 |
|---|--|------------------|

FDOC-T05-11 FDOC Total Cost Estimate: (b) (4)

**FY:** 2011 Grand Totals

|                   | <u>2011</u> | <u>Grand Totals</u> |
|-------------------|-------------|---------------------|
| <b>HOURS:</b>     | (b)         | (4)                 |
| <b>LABOR:</b>     | (b)         | (4)                 |
| <b>ODC:</b>       | (b)         | (4)                 |
| <b>TRAVEL:</b>    | (b)         | (4)                 |
| <b>MATERIALS:</b> | (b)         | (4)                 |
| <b>SUPPORT:</b>   | (b)         | (4)                 |
| <b>G&amp;A:</b>   | (b)         | (4)                 |
| <b>FEE:</b>       | (b)         | (4)                 |
| <b>AMOUNT:</b>    | (b)         | (4)                 |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-11 | <b>Mod:</b><br>2 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**IN POP BASELINE:** NO

**PSLA:** None Specified

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

282938.07.21.02.01.10

575376.07.01.02.02.03


575376.07.01.02.02.03

609524.09.03.02.03.01

609524.09.03.02.03.07

**WBS Total:**

(b) (4)

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO6-11          | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C                |  |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.1                             |  |
| <b>Title:</b> Systems Security Engineering and Integration Support  |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input checked="" type="checkbox"/> Exploration   | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input checked="" type="checkbox"/> Constellation | <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle                                     |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station       | <input type="checkbox"/> Other   |
| Other Desc:   |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2010  |                                      | <b>Estimated Completion Date:</b><br>09/30/2011   |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                      | <b>Date Approved</b>   |
| Task Order Monitor  | Snook, Bryan                         | (281) 244-0192                                    | 08/13/2010   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                    | 08/13/2010   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                    | 08/16/2010   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                    | 09/17/2010   |
| Task Order Monitor  | Snook, Bryan                         | (281) 244-0192                                    | 09/28/2010   |
| NASA Resource Analyst   | Stewart, Bradley                     | (281) 483-0356                                    | 09/30/2010   |
| COTR  | Lowery, James                        | (281) 483-1064                                    | 09/30/2010   |
| NASA Contracts Officer  | Carpentier, John                     | (281) 244-7254                                    | 09/30/2010   |
| <b>CO's Signature</b>    |                                      | <b>Date</b> 10-1-10                               |  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO6-11 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

### **1.2 OBJECTIVE**

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.  
 - IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MOFD systems. Mission systems definition includes, CXTF, MCCS, SSTF, SMS, Support Systems and other systems identified by MOFD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and  
 - Scope of systems security is identified in Federal, NASA Agency, JSC, and MOFD security documents.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Provide Program level ground system security support for the ISS and Constellation MOP programs. Personnel will provide security interface both internal to MOFD and external to MOFD regarding all aspects of IT and COMSEC security, and will act on behalf of MOFD.

Provide Security Services for MOFD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the COMSEC Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MOFD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

- 1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.
- 2.) Provide leadership in prototyping proposed security controls in both OTF and GSDE systems.
- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.
- 4.) Analyze RFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.
- 5.) Prototype proposals/requirements and and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

### **2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MOFD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

- 1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)
- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## FDOC TECHNICAL DIRECTION FORM

Tech Direction Title: ISS - IT Security

TD#: TD001

Task Order Title: Systems Security Engineering and Integration Support

TO#: FDOC-TO6-11

**Technical Direction Description (must be within the technical scope and authorized resources of the currently approved task):**

- 1.a.) Provide security-engineering support for International Space Station (ISS) control center and telecommunications capabilities.
- 1.b.) Provide security-engineering support for ISS International Partners as requested.
- 2.) Perform Security analysis review and evaluation of NASA and International Partner control systems and telecommunication networks providing connectivity.
- 3.) Provide review and evaluation for NASA and International Partners ground systems documentaiton and space flight documentation as required for interface to the ground systems.
- 4.) Generate and maintain documents including program process and procedures, external organization agreements and protocols, interface control documents (ICD), security plans, technical interface meeting (TIM), ground segment schedules, and security Protection documentation as required by JSC/MOD and NASA/GSCB.
- 5.) Provide oversight of ISS ComSec Facility operations, maintenance and upgrades.
- 6.) Review and provide comment/updates to documents for the Consultative Committee for Space Data systems as applicable to the NASA ISS program and provide candidates as appropriate for prototyping for proof of concept of CCSDS standards.

This cost data is for information only. The combined total of all TD costs is shown on the FDOC cost estimate.

| FY   | Hours | Labor | ODC | Travel | Materials | Support | G&A | Fee | Amount |
|------|-------|-------|-----|--------|-----------|---------|-----|-----|--------|
| 2011 |       |       |     |        | (b) (4)   |         |     |     |        |

Tech Direction Title: Cx IT Security

TD#: TD002

Task Order Title: Systems Security Engineering and Integration Support

TO#: FDOC-TO6-11

**Technical Direction Description (must be within the technical scope and authorized resources of the currently approved task):**

- 1.)Provide security engineering support for Constellation MOP Programmatic Ground Segments .
- 2.)Attend appropriate meetings in support of Constellation MOP requirements development.
- 3.)Perform Security analysis reviews and evaluations of proposed Cx control systems and systems external to the Cx Control Center, including the telecommunications systems providing connectivity between all Cx systems.
- 4.)Perform security analysis review, evaluation and comments/redlines to proposed Cx documentation.
- 5.)Develop required MOFD Constellation MOP program process and procedures as required.
- 6.)Provide reviews and updates to Cx MOP planned security incident procedures, reporting, coordination and follow-up.
- 7.)Document and provide security protection development support to the Cx MOP program, including but not limited to, security risk analysis, security requirements, security plans, security products and implementation and security test support.
- 8.)Generate and maintain documentation including program process and procedures, external organization agreement and protocols, interface control documents (ICD), security plans, technical interface meeting (TIM), working groups, development schedules, and security protection documentation.
- 9.)Review and provide comment/updates to documents for the Consultative Committee for Space Data systems as applicable to the NASA Cx MOP program and provide candidates as appropriate for prototyping for proof of concept of CCSDS standards.

This cost data is for information only. The combined total of all TD costs is shown on the FDOC cost estimate.

| FY   | Hours | Labor | ODC | Travel | Materials | Support | G&A | Fee | Amount |
|------|-------|-------|-----|--------|-----------|---------|-----|-----|--------|
| 2011 |       |       |     |        | (b) (4)   |         |     |     |        |

|  |                                   |      |
|--|-----------------------------------|------|
| Facilities Development and Operations Contract<br>Estimated NASA Resources Summary | Task Order Number:<br>FDOC-TO6-11 | Mod: |
|--|-----------------------------------|------|

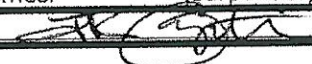
**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u> |
|-----------------------|---------------|
| 282938.01.21.01.10.10 | (b) (4)       |
| 609524.09.03.02.03.09 |               |
| <b>WBS Total:</b>     |               |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO8-11  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.7   |                      |
| <b>Title:</b> Alternate Facility Manager  |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2010  |                         | <b>Estimated Completion Date:</b><br>09/30/2011   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 08/10/2010           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 08/17/2010           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 08/17/2010           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 09/17/2010           |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 09/27/2010           |
| NASA Resource Analyst   | Stewart, Bradley        | (281) 483-0356  | 09/30/2010           |
| COTR  | Lowery, James           | (281) 483-1064  | 09/30/2010           |
| NASA Contracts Officer  | Carpentier, John        | (281) 244-7254  | 09/30/2010           |
| <b>CO's Signature</b>    |                         |   | <b>Date</b> 10-1-10  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T08-11 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |        |           |                |                                      |        |           |          |

Total Value (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO8-11 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide assistance to or act as the Facility Manager.

### **1.2 OBJECTIVE**

Ensure that safety, operations and facility support issues are resolved in a timely manner.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between DD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBS)
- Respond to Hot and Cold Calls
- Respond to Building Issues
- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning
- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)
- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)
- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance, operations, and engineering. This effort includes activities such as analysis and integration
- Support continuous improvement efforts to improve overall efficiency of facility operations. This effort includes activities such as process improvements and design reviews
- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

### **2.2 NASA INPUT REQUIREMENTS**

None required.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

Labor: 2 FTEs with facility/program split as follows:

10/1/2010 - 7/20/2011

1 FTE - MCCA 49% ISS, 51% SSP

1 FTE - SSTF 49% ISS, SMTF 51% SSP

7/21/2011 - 9/30/2011

1 FTE - MCCA 100% ISS

1 FTE - SSTF 100% ISS

Alternate Facility Manager may require travel to support Facility-related safety training and/or benchmarking activities. Travel plan not to exceed \$2000.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T08-11 | <b>Mod:</b> |
|---|--|-------------|

FDOC-T08-11 FDOC Total Cost Estimate:

(b) (4)

FY:

2011Grand Totals

HOURS:

LABOR:

ODC:

TRAVEL:

MATERIALS:

SUPPORT:

G&amp;A:

FEE:

AMOUNT:

|     |     |
|-----|-----|
| (b) | (4) |
|-----|-----|

|  |                                   |      |
|--|-----------------------------------|------|
| Facilities Development and Operations Contract<br>Estimated NASA Resources Summary | Task Order Number:<br>FDOC-T08-11 | Mod: |
|--|-----------------------------------|------|

**NASA RESOURCES GENERAL INFORMATON**


**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** YES

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u> |
|-----------------------|---------------|
| 575376.07.01.02.02.03 | (b) (4)       |
| 575376.07.01.02.02.05 |               |
| 609524.09.03.02.03.01 |               |
| 609524.09.03.02.03.05 |               |
| <b>WBS Total:</b>     |               |

Date Printed: 10/01/2010

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO9-11        | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 11   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1                           |                      |
| <b>Title:</b> Ground Segment Control Board Technical Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other   |                         |   |                      |
| Other Desc:  |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2010   |                         | <b>Estimated Completion Date:</b><br>09/30/2011 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Gowda, Shashi           | (281) 483-7057                                  | 08/03/2010           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 08/06/2010           |
| Task Order Division  | Sims, John              | (281) 483-2344                                  | 08/06/2010           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 09/10/2010           |
| Task Order Monitor   | Gowda, Shashi           | (281) 483-7057                                  | 09/28/2010           |
| NASA Resource Analyst  | Stewart, Bradley        | (281) 483-0356                                  | 09/30/2010           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 09/30/2010           |
| NASA Contracts Officer   | Carpentier, John        | (281) 244-7254                                  | 09/30/2010           |
| <b>CO's Signature</b>   |                         |   | <b>Date</b> 10-1-10  |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO9-11 | Revision: |        |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|-----------|--------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$    | Fee \$ | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                      |           |        |          |
| Totals:  |          | (b) (4)        |          |        |           |                |                                      |           |        |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO9-11 | <b>Mod:</b> |
|--|--|-------------|

#### 1.0 **GENERAL SCOPE OF WORK**

##### 1.1 **PURPOSE**

Provide technical support to the Ground Segment Control Board (GSCB)

##### 1.2 **OBJECTIVE**

Ensure all GSCB activities are supported

#### 2.0 **TASK DESCRIPTION**

##### 2.1 **DESCRIPTION OF WORK**

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and International Technical Interchange Meetings (TIMs).

Tasks include:

- ? International Ground Systems Specification (IGSS) book management
- ? Support Multi-lateral GSCB and TIMs at IP locations
- ? Review and provide comments on IP ground segment requirements
- ? GSCB engineering support
- ? Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- ? Support for IP End-to-End test coordination
- ? Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
- ? IP Network requirements and implementation coordination

##### 2.2 **NASA INPUT REQUIREMENTS**

All NASA Programmatic requirements.

##### 2.3 **CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                                 |                         |  |
|---------------------------------|-------------------------|--|
| 1. As Identified to fulfill 2.1 | Per negotiated schedule |  |
|---------------------------------|-------------------------|--|

##### 2.4 **MATERIAL/TRAVEL**

Labor: 3 FTEs

100% ISS

International trips not exceed 20K.

Domestic trips not to exceed 12K.

#### 3.0 **SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

#### 4.0 **SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO9-11 | <b>Mod:</b> |
|---|--|-------------|

FDOC-TO9-11 FDOC Total Cost Estimate: (b) (4)

| <b>FY:</b>        | <b><u>2011</u></b> | <b><u>Grand Totals</u></b> |
|-------------------|--------------------|----------------------------|
| <b>HOURS:</b>     | (b)                | (4)                        |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T09-11 | <b>Mod:</b> |
|---|--|-------------|


**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u> | <u>Amount</u> |
|------------|---------------|
| WBS Total: | (b) (4)       |

|  |                                      |   |  |
|--|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                                      | <b>Task Order Number:</b><br>FDOC-TO10-11       | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation   |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 11   | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.6                           |  |
| <b>Title:</b> COMSEC Operations  |                                      |   |  |
| <b>Mission Directorates Supported:</b>   | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>   | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input checked="" type="checkbox"/> Shuttle                                     |
|  | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input type="checkbox"/> Other   |
| Other Desc:  |                                      |   |  |
| <b>Schedule</b>  |                                      |   |  |
| <b>Start Date:</b><br>10/01/2010   |                                      | <b>Estimated Completion Date:</b><br>09/30/2011 |  |
| <b>Approvals</b>   |                                      |   |  |
| <b>Title</b>   | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor   | Melendrez, Amy                       | (281) 244-1134                                  | 08/10/2010   |
| Task Order TMR   | Macha, Mitchell                      | (281) 483-7059                                  | 08/10/2010   |
| Task Order Division  | Lindner, Daniel                      | (281) 483-3885                                  | 08/10/2010   |
| FDOC Representative  | Beuchaw, Karen                       | (281) 283-4363                                  | 09/13/2010   |
| Task Order Monitor   | Melendrez, Amy                       | (281) 244-1134                                  | 09/27/2010   |
| NASA Resource Analyst  | Stewart, Bradley                     | (281) 483-0356                                  | 09/30/2010   |
| COTR   | Lowery, James                        | (281) 483-1064                                  | 09/30/2010   |
| NASA Contracts Officer   | Carpentier, John                     | (281) 244-7254                                  | 09/30/2010   |
| <b>CO's Signature</b>   |                                      |   | <b>Date</b> 10-1-10  |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO10-11 | Revision: |        |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|-----------|--------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$    | Fee \$ | Total \$ |
| 2011   | Original | (b) (4)        |          |        |           |                |                                       |           |        |          |
| Totals:  |          | (b) (4)        |          |        |           |                |                                       |           |        |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO10-11 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide 24/7 operations and maintenance support for the MCCA COMSEC.

### **1.2 OBJECTIVE**

Provide COMSEC support for all MCCA encryption/ and other Federal and DoD requirements for secure communications.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

The Contractor shall comply with Federal and DoD requirements for secure communications, utilizing the COMSEC system. These systems shall provide for classified and sensitive but unclassified (SBU) communications using administrative and physical controls. Refer to Attachment J-2, Applicable Documents.

The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure communications.

The Contractor shall provide encryption key management services, in accordance with secure communications requirements.

The Contractor shall provide for proper handling, storage, and destruction of classified, SBU and COMSEC materials and documentation.

The Contractor shall maintain the classified messaging capability, including associated encryption key management services, storage of classified and sensitive documentation, and the interfaces to the classified point to point circuits.

The Contractor shall provide support for the daily operations and maintenance of the Secret Internet Protocol Router System (SIPRNET).

The Contractor shall provide support for the daily operations and maintenance of the Space Shuttle and International Space Station Command Encryption Systems.

### **2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Specific Federal secure communications documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1. NSTISSI 4005 ? Safeguarding and Control of Communications Security Material.
2. NSTISSI 4000 ? Cryptographic Equipment Maintenance and Training.
3. NSTISSI 3005 ? Safeguarding and Control of Data Encryption Standard (DES) Equipment and Associated Unclassified Communications Security Aids.
4. NSTISSI 4001 ? Controlled COMSEC Items (CCI).
5. NSTISSI 4004 ? Routine Destruction and Emergency Protection of COMSEC Material.
6. NSTISSI 7000 ? TEMPEST Countermeasures for Facilities
7. NSTISSAM TEMPEST/2-95 ? Red/Black Installation Guidance
8. FIPS Pub. 140-2 ? Security Requirements for Cryptographic Modules.
9. Special Publication 800-21 ? Guideline for Implementing Cryptography in the Federal Government.
10. FIPS Pub. 197 ? Advanced Encryption Standard (AES), specifies the AES algorithm.
11. FIPS Pub. 46-3 ? Data Encryption Standard (DES)
12. FIPS Pub. 81 ? DES Modes of Operation
13. FIPS Pub. 74 ? Guidelines for Implementing and Using DES
14. NASA/USAF Interagency Agreement for COMSEC, Attachment F-1, COMSEC Maintenance Support Plan, dated 6/83.
15. NSTS-22241 ? COMSEC Key Control Agreement.
16. COMSEC Maintenance Support Plan, Attachment F-1
17. NASA Policy and Requirement (NPR) 2810 (Current Revision)
18. NASA Communications Security (COMSEC) Classification Guide.
19. NASA Center Office of Records (COR) COMSEC Standard Operating Procedures (CSOP) Complete Set

Working knowledge:

1. Operations of the Space Shuttle Command Encryption System, ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

2. Maintenance and associated Installation of the Space Shuttle Command Encryption System, ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

3.) MCCC Comsec facility and interfaces to MCCC.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

---

**2.4 MATERIAL/TRAVEL**

Labor:

10/1/2011 - 7/20/2011

10 FTE, 51% ISS/49% SSP

7/21/2011 - 9/30/2011

8 FTE, 100% ISS

Travel: Travel will be required to support COMSEC requirements. COMSEC travel should not to exceed \$6K. This travel budget is planned to accommodate:

- 2 domestic trips for BCC/HOSC activation and Hurricane support. Each trip is a 1 week duration for 2 people.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

|   |   |             |
|---|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO10-11 | <b>Mod:</b> |
|---|---|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**


**WBS Total:**

**(b) (4)**

|   |   |             |
|---|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO10-11 | <b>Mod:</b> |
|---|---|-------------|

FDOC-TO10-11 FDOC Total Cost Estimate (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <u><b>2011</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>     | (b) (4)            |                            |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |  |   |
|---|--|--|---|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |  | <b>Task Order Number:</b><br>FDOC-TO11-11  | <b>Mod:</b>   |
| <b>Contractor:</b> Lockheed Martin Corporation  |  | <b>Contract Number:</b> NNJ09HD46C   |   |
| <b>GFY:</b> 11  | <b>Multiyear:</b> No   | <b>SOW Ref:</b> 3.3  |   |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of Constellation   |  |  |   |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics   | <input checked="" type="checkbox"/> Exploration  | <input type="checkbox"/> External <input type="checkbox"/> Science <input type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input checked="" type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle | <input type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input type="checkbox"/> Other |   |
| Other Desc:   |  |  |   |
| <b>Schedule</b>   |  |  |   |
| <b>Start Date:</b><br>10/01/2010  |  | <b>Estimated Completion Date:</b><br>09/30/2011  |   |
| <b>Approvals</b>  |  |  |   |
| <b>Title</b>  | <b>Point of Contact</b>  | <b>Phone</b>   | <b>Date Approved</b>  |
| Task Order Monitor  | Ward, Dawn   | (281) 483-6145   | 08/05/2010  |
| Task Order TMR  | Macha, Mitchell  | (281) 483-7059   | 08/10/2010  |
| Task Order Division   | Lindner, Daniel  | (281) 483-3885   | 08/10/2010  |
| FDOC Representative   | Beuchaw, Karen   | (281) 283-4363   | 09/10/2010  |
| Task Order Monitor  | Ward, Dawn   | (281) 483-6145   | 10/01/2010  |
| NASA Resource Analyst   | Webley, Grant  | (281) 483-3906   | 10/01/2010  |
| COTR  | Lowery, James  | (281) 483-1064   | 10/01/2010  |
| NASA Contracts Officer  | Carpentier, John   | (281) 244-7254   | 10/01/2010  |
| <b>CO's Signature</b>    |  |  | <b>Date</b> 10-1-10   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |  |  |   |

[illegible]

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|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO11-11 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Constellation Mission Operations.

### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the Constellation Program (CxP) baseline and aid the MOP Elements (i.e. MCCS, CxTF, MORS) in remaining current with the MOP baseline.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate Cx programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Baseline Access - grant and control access to technical baseline data. This includes placing the data in a authorized but accessible location and providing the instruction needed to allow users efficient access.

b.) Ensure technical baseline compliance to Programmatic constraints

1. MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the CxP-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

c.) Scheduling of technical baseline

Generate and maintain CxP-to-MOP-to-Element dependencies schedules and provide scheduling data inputs to the MOP Integrated Master Schedule. Review and update Element schedule data to the IMS.

d.) Technical Baseline Risk Management

Risk Management for those Risks that are a result of threats to the Technical baseline. Includes maintenance of the Risks in IRMA

2.) Provide Cradle Support

a) Provide Level II ASET participation for determining Cradle schema change impacts to the MOP, advocating MOP needs and proposed schema updates, representing MOP interests in ASET technical forums.

b) Perform Level III (i.e. MOP) Cradle management, including production and CM of Cradle developed MOP products (e.g. System requirements, Operations Concepts, Architecture Designs, Interface requirements;) schema tailoring and administration for MS segment of Cradle.

c) Create and maintain (including linkages and data item descriptions) data in Cradle used to define the MOP technical baseline.

d) Support MOP Elements (i.e. MCCS, CxTF, MORS) in development and maintenance of Cradle schema, publication templates, and data promotion.

3.) Provide Technical Forum Support

a.) Provide technical support to the CxP and MOP/ MOD forums (e.g. MOFD CCB, MEICB, ICP, CxRWG, MWG) that

make system engineering evaluations and decisions.

b.) Provide technical and administrative support to the MOP Working Group (MWG.)

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

## **2.2 NASA INPUT REQUIREMENTS**

- Access to Cradle tool and training

- Access to all MOP-level requirements and design documentation

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

LOE support is 2.5 FTE - Cx funding.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

## **4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|  |                                    |      |
|--|------------------------------------|------|
| Facilities Development and Operations Contract<br>FDOC Cost Estimate | Task Order Number:<br>FDOC-TO11-11 | Mod: |
|--|------------------------------------|------|

FDOC-TO11-11 FDOC Total Cost Estimate: (b) (4)

|            |             |                     |
|------------|-------------|---------------------|
| FY:        | <u>2011</u> | <u>Grand Totals</u> |
| HOURS:     | (b)         | (4)                 |
| LABOR:     |             |                     |
| ODC:       |             |                     |
| TRAVEL:    |             |                     |
| MATERIALS: |             |                     |
| SUPPORT:   |             |                     |
| G&A:       |             |                     |
| FEE:       |             |                     |
| AMOUNT:    |             |                     |

|   |   |             |
|---|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO11-11 | <b>Mod:</b> |
|---|---|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO01-12       | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 12  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.1.2                         |  |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)   |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input checked="" type="checkbox"/> Other  |
| Other Desc: MPCV  |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2011  |                                      | <b>Estimated Completion Date:</b><br>09/30/2012 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Hervey, Jewel                        | (281) 483-0359                                  | 07/13/2011   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 07/14/2011   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 07/14/2011   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 08/15/2011   |
| Task Order Monitor  | Hervey, Jewel                        | (281) 483-0359                                  |  |
| JSC Resources Analyst   | Webley, Grant                        | (281) 483-3906                                  |  |
| COTR  | Lowery, James                        | (281) 483-1064                                  |  |
| JSC Contracts Officer   | Maclean, Cynthia                     | (281) 244-5903                                  |  |
| <b>CO's Signature</b>   |                                      |   | <b>Date</b>  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |             |          |        |           |             | Task Order Number:<br>FDOC-TO1-12 |        | Revision: |          |
|--|----------|-------------|----------|--------|-----------|-------------|-----------------------------------|--------|-----------|----------|
| Fiscal Year  | Mod      | Labor Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                        | G&A \$ | Fee \$    | Total \$ |
| 2012   | Original | (b) (4)     |          |        |           |             |                                   |        |           |          |
| Totals:  |          |             |          |        |           |             |                                   |        |           |          |

Total Task Order Value: (b) (4)

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO01-12 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS and MPCV ground-to-ground communications requirements.

### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station and MPCV program tasks delegated to MOD to execute on behalf of the ISS and MPCV programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS and MPCV operational support among all elements that support the ISS Program
- Gather and consolidate communications requirements into draft versions of the NPRD and INPRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS and MPCV Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS and MPCV Program communications requirements
- Document final, approved version of ISS and MPCV communications requirements in the NPRD and INPRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS and MPCV Programs
- Support other ISS and MPCV operational communications related tasks as required by NASA

### **2.2 NASA INPUT REQUIREMENTS**

International Space Station Operational Communication Overview (IOCO)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

4 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 2)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

Labor: 1 FTE (.91 ISS, 0.09 MPCV)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

Date Printed: 08/10/2012

|   |   |   |                      |
|---|---|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO4-12        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 12  | <b>Multiyear:</b> No  | <b>SOW Ref:</b> 1.5.4.8                         |                      |
| <b>Title:</b> Architectural and Engineering Support   |   |   |                      |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |   |                      |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc: |   |                      |
| <b>Schedule</b>   |   |   |                      |
| <b>Start Date:</b><br>10/01/2011  |   | <b>Estimated Completion Date:</b><br>09/30/2012 |                      |
| <b>Approvals</b>  |   |   |                      |
| <b>Title</b>  | <b>Point of Contact</b>   | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Wolfer, Eric  | (281) 483-6709                                  | 07/19/2012           |
| Task Order TMR  | Macha, Mitchell   | (281) 483-7059                                  | 07/20/2012           |
| Task Order Division   | MCDONALD, BRIAN   | (281) 24-0010                                   | 07/20/2012           |
| FDOC Representative   | Beuchaw, Karen  | (281) 283-4363                                  | 08/01/2012           |
| Task Order Monitor  | Wolfer, Eric  | (281) 483-6709                                  | 08/08/2012           |
| NASA Resource Analyst   | Hewett, Benjamin  | (281) 244-6604                                  | 08/10/2012           |
| COTR  | Lowery, James   | (281) 483-1064                                  | 08/10/2012           |
| NASA Contracts Officer  | Maclean, Cynthia  | (281) 244-5903                                  | 08/10/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |   |   | <b>Date</b> 8/10/12  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |       |          |                | Task Order<br>Number:<br>FDOC-TO4-12 |       | Revision:<br>1 |         |
|--|----------|----------------|----------|-------|----------|----------------|--------------------------------------|-------|----------------|---------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC's | Travel's | Material<br>\$ | Support<br>\$                        | G&A's | Fee's          | Total's |
| 2012   | Original | (b) (4)        |          |       |          |                |                                      |       |                |         |
| 2012   | 1        |                |          |       |          |                |                                      |       |                |         |
| Totals:  |          |                |          |       |          |                |                                      |       |                |         |

Total Value: (b) (4)

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-12 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2012   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2012   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

Total Value (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

**1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
  - 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
  - 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
  - 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
  - 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

Materials not to exceed 250K ISS (original)

Materials not to exceed 241K ISS (Rev 1)

Total materials not to exceed 491K (Rev 1)

9.0 FTE ISS OTF Support. Travel Support not to exceed 15K.

1.0 FTE SCAN Data Standards support. Travel support not to exceed 20K and materials not to exceed 5K.

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO4-12 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-TO4-12 FDOC Total Cost Estimate: (b) (4)

|                   |             |                     |
|-------------------|-------------|---------------------|
| <b>FY:</b>        | <b>2012</b> | <b>Grand Totals</b> |
| <b>HOURS:</b>     | (b) (4)     | (b) (4)             |
| <b>LABOR:</b>     |             |                     |
| <b>ODC:</b>       |             |                     |
| <b>TRAVEL:</b>    |             |                     |
| <b>MATERIALS:</b> |             |                     |
| <b>SUPPORT:</b>   |             |                     |
| <b>G&amp;A:</b>   |             |                     |
| <b>FEE:</b>       |             |                     |
| <b>AMOUNT:</b>    |             |                     |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO4-12 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**IN POP BASELINE:** NO

**PSLA:** None Specified

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

439432.07.03.05.01

(b) (4)

609524.09.03.02.09.06

**WBS Total:**

**RESOURCE ANALYST COMMENTS**

(b) (4) DPRF in-process.

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO0-12  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 12  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2   |                      |
| <b>Title:</b> Program Requirements Document (PRD)   |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2011  |                         | <b>Estimated Completion Date:</b><br>09/30/2012   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359  | 07/13/2011           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 07/14/2011           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 07/14/2011           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 08/15/2011           |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359  |                      |
| JSC Resources Analyst   | Webley, Grant           | (281) 483-3906  |                      |
| COTR  | Lowery, James           | (281) 483-1064  |                      |
| JSC Contracts Officer   | Maclean, Cynthia        | (281) 244-5903  |                      |
| <b>CO's Signature</b>   |                         | <b>Date</b>   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |             |          |        |           |             | Task Order Number:<br>FDOC-T00-12 |        | Revision: |          |
|--|----------|-------------|----------|--------|-----------|-------------|-----------------------------------|--------|-----------|----------|
| Fiscal Year  | Mod      | Labor Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                        | G&A \$ | Fee \$    | Total \$ |
| 2012   | Original |             |          |        |           |             |                                   |        |           |          |
| Totals:  |          |             |          |        |           |             |                                   |        |           |          |

Total Task Order Value: (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO0-12 | <b>Mod:</b> |
|--|--|-------------|

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

**1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK****2.2 NASA INPUT REQUIREMENTS**

Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II  
Electronic book maintenance for ISS Orbital Volume I,II

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

1 trip (ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (ISS)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-T00-12        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 12   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2                           |                      |
| <b>Title:</b> Program Requirements Document (PRD)  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2011   |                         | <b>Estimated Completion Date:</b><br>09/30/2012 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 01/23/2012           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 01/23/2012           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 01/23/2012           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 01/25/2012           |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 01/25/2012           |
| NASA Resource Analyst  | Hewett, Benjamin        | (281) 244-6604                                  | 02/07/2012           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 02/13/2012           |
| NASA Contracts Officer   | Macleay, Cynthia        | (281) 244-5903                                  | 02/14/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>   |                         |   | <b>Date</b> 2/14/12  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                      |

Date Printed: 07/25/2012

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO3-12        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 12   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> UA - System Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other   |                         |   |                      |
| Other Desc:  |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2011   |                         | <b>Estimated Completion Date:</b><br>09/30/2012 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Leblanc, Troy           | (281) 244-0279                                  | 07/09/2012           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 07/10/2012           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/10/2012           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 07/17/2012           |
| Task Order Monitor   | Leblanc, Troy           | (281) 244-0279                                  | 07/10/2012           |
| NASA Resource Analyst  | Hewett, Benjamin        | (281) 244-6604                                  | 07/20/2012           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 07/23/2012           |
| NASA Contracts Officer   | Maclean, Cynthia        | (281) 244-5903                                  |                      |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>   |                         | <b>Date</b> 7/25/12                             |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

**Revision:**  
1

|             |         |
|-------------|---------|
| Total Value | (b) (4) |
|-------------|---------|

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO3-12 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.
- 12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MSCP, UAWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support UAS activities by supplying information as requested on UAS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## **2.4 MATERIAL/TRAVEL**

\$16K for travel:

ISS ? 4 FTE UA (allocated out of UA earmark)

Mod 1 ISS - 253 hrs Jul thru Sept FOX Project Support.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T03-12 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T03-12 FDOC Total Cost Estimate: (b) (4)

**FY:** 2012 Grand Totals

**HOURS:** (b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO3-12 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

609524.09.03.02.05.06

**Amount**

(b) (4)

**WBS Total:**

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T00-13   | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2  |                      |
| <b>Title:</b> Program Requirements Document (PRD)   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/GSDO |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 07/03/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 07/09/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 07/09/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 08/17/2012           |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 08/17/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604   | 08/29/2012           |
| COTR  | Lowery, James           | (281) 483-1064   | 08/29/2012           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 09/06/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         |  | <b>Date</b> 9/6/12   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |              |                | Task Order<br>Number:<br>FDOC-T00-13 |        | Revision: |          |
|--|----------|----------------|----------|--------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original | (b) (4)        |          |        |              |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |        |              |                |                                      |        |           |          |

Total Value: (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations<br/>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-T00-13 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

### **2.2 NASA INPUT REQUIREMENTS**

Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV

Electronic book maintenance for ISS Orbital Volume I,II and MPCV

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

1 trip (ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (.82 ISS and .18 MPCV)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T00-13   | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2  |                      |
| <b>Title:</b> Program Requirements Document (PRD)   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/GSDO |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 09/14/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 09/18/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 09/18/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 09/13/2012           |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 09/19/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604   | 09/26/2012           |
| COTR  | Lowery, James           | (281) 483-1064   | 09/27/2012           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 10/10/2012           |
| <b>CO's Signature</b> <i>Andy Macha</i>   |                         |  | <b>Date</b> 10/10/12 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

**Facilities Development and Operations Contract  
FDOC Cost Estimate Summary**

**Task Order  
Number:**  
FDOC-T00-13

**Rev:**

**I**

| Fiscal Year    | Mod      | Labor Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$ | G&A \$ | Fee \$ | Total \$ |
|----------------|----------|-------------|----------|--------|-----------|-------------|------------|--------|--------|----------|
| 2013           | Original |             | (b) (4)  |        |           |             |            |        |        | (b) (4)  |
| 2013           | 1        |             |          |        |           |             |            |        |        |          |
| <b>Totals:</b> |          |             |          |        |           |             |            |        |        |          |

Total Value (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO0-13 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

### **1.2OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

### **2.2NASA INPUT REQUIREMENTS**

Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV  
Electronic book maintenance for ISS Orbital Volume I,II and MPCV

### **2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4MATERIAL/TRAVEL**

1 trip (ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (.72 ISS and .28 MPCV)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T00-13 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T00-13 FDOC Total Cost Estimate: (b) (4)

**FY:** **2013** **Grand Totals**

**HOURS:** (b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:** \$ (b) (4) (b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO0-13 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u> |
|-----------------------|---------------|
| 609524.07.01.02.07.08 | (b) (4)       |
| 747797.07.01.01.10.02 |               |
| <b>WBS Total:</b>     | \$ (b) (4)    |

|   |                         |  |                           |
|---|-------------------------|--|---------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO1-13   | <b>Mod:</b>               |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                           |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1.2  |                           |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)   |                         |  |                           |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                           |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |                           |
| <b>Schedule</b>   |                         |  |                           |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013  |                           |
| <b>Approvals</b>  |                         |  |                           |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b>      |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 07/03/2012                |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 07/09/2012                |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 07/09/2012                |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 08/17/2012                |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359   | 08/17/2012                |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604   | 08/29/2012                |
| COTR  | Lowery, James           | (281) 483-1064   | 08/29/2012                |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 09/07/2012                |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         |  | <b>Date</b> <i>9/7/12</i> |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                           |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO1-13 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original | (b) (4)        |          |           |              |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |           |              |                |                                      |        |           |          |

Total Value: (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO1-13 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NCAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs
- Gather and consolidate communications requirements into draft versions of the NPRD and MSRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements
- Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the NPRD and MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs
- Support other ISS, MPCV, SLS, and GSDO operational communications related tasks as required by NASA

### **2.2 NASA INPUT REQUIREMENTS**

International Space Station Operational Communication Overview (IOCO)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

6 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 4)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

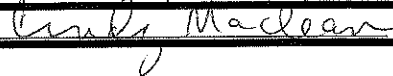
Labor: 1 FTE (.78 ISS, 0.22 MPCV)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |   |  |  |
|---|---|--|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO1-13   | <b>Mod:</b><br>1   |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C   |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No  | <b>SOW Ref:</b> 3.3.1.2  |  |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)   |   |  |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics  | <input type="checkbox"/> Exploration   | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle | <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other |  |
| Other Desc: MPCV, SLS, GSDO   |   |  |  |
| <b>Schedule</b>   |   |  |  |
| <b>Start Date:</b><br>10/01/2012  |   | <b>Estimated Completion Date:</b><br>09/30/2013  |  |
| <b>Approvals</b>  |   |  |  |
| <b>Title</b>  | <b>Point of Contact</b>   | <b>Phone</b>   | <b>Date Approved</b>   |
| Task Order Monitor  | Hervey, Jewel   | (281) 483-0359   | 09/14/2012   |
| Task Order TMR  | Macha, Mitchell   | (281) 483-7059   | 09/18/2012   |
| Task Order Division   | Lindner, Daniel   | (281) 483-3885   | 09/18/2012   |
| FDOC Representative   | Beuchaw, Karen  | (281) 283-4363   | 09/13/2012   |
| Task Order Monitor  | Hervey, Jewel   | (281) 483-0359   | 09/19/2012   |
| NASA Resource Analyst   | Hewett, Benjamin  | (281) 244-6604   | 09/26/2012   |
| COTR  | Lowery, James   | (281) 483-1064   | 09/27/2012   |
| NASA Contracts Officer  | Maclean, Cynthia  | (281) 244-5903   | 10/10/2012   |
| <b>CO's Signature</b>    |   |  | <b>Date</b> 10/10/12   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |  |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO1-13 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original |                | (b) (4)  |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

Total Value: (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO1-13 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NCAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs
- Gather and consolidate communications requirements into draft versions of the NPRD and MSRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements
- Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the NPRD and MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs
- Support other ISS, MPCV, SLS, and GSDO operational communications related tasks as required by NASA

### **2.2 NASA INPUT REQUIREMENTS**

International Space Station Operational Communication Overview (IOCO)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

6 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 4)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

Labor: 1 FTE (.74 ISS, 0.26 MPCV)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

FDOC-TO1-13 FDOC Total Cost Estimate: (b) (4)

| <b>FY:</b> | <b><u>2013</u></b> | <b><u>Grand Totals</u></b> |
|------------|--------------------|----------------------------|
|------------|--------------------|----------------------------|

|               |         |  |
|---------------|---------|--|
| <b>HOURS:</b> | (b) (4) |  |
|---------------|---------|--|

|               |  |  |
|---------------|--|--|
| <b>LABOR:</b> |  |  |
|---------------|--|--|

|             |  |  |
|-------------|--|--|
| <b>ODC:</b> |  |  |
|-------------|--|--|

|                |  |  |
|----------------|--|--|
| <b>TRAVEL:</b> |  |  |
|----------------|--|--|

|                   |  |  |
|-------------------|--|--|
| <b>MATERIALS:</b> |  |  |
|-------------------|--|--|

|                 |  |  |
|-----------------|--|--|
| <b>SUPPORT:</b> |  |  |
|-----------------|--|--|

|                 |  |  |
|-----------------|--|--|
| <b>G&amp;A:</b> |  |  |
|-----------------|--|--|

|             |  |  |
|-------------|--|--|
| <b>FEE:</b> |  |  |
|-------------|--|--|

|                |         |  |
|----------------|---------|--|
| <b>AMOUNT:</b> | (b) (4) |  |
|----------------|---------|--|

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO1-13 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <b><u>WBS</u></b>     | <b><u>Amount</u></b> |
|-----------------------|----------------------|
| 609524.07.01.02.07.07 | (b) (4)              |
| 747797.07.01.01.10.02 |                      |
| <b>WBS Total:</b>     | \$ (b) (4)           |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-T02-13        | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 13   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.3                           |                      |
| <b>Title:</b> Human Space Flight Network Operations Integration  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2012   |                         | <b>Estimated Completion Date:</b><br>09/30/2013 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 07/03/2012           |
| Task Order TMR   | Macha, Mitchell         | (281) 483-7059                                  | 07/09/2012           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/09/2012           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 08/17/2012           |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 08/21/2012           |
| NASA Resource Analyst  | Hewett, Benjamin        | (281) 244-6604                                  | 09/21/2012           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 09/21/2012           |
| NASA Contracts Officer   | Maclean, Cynthia        | (281) 244-5903                                  | 09/25/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>   |                         | <b>Date</b> 9/25/12                             |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO2-13 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original |                | (b) (4)  |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |
| Total Value:   |          | (b) (4)        |          |        |           |                |                                      |        |           |          |

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

**1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated service
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

**2.2 NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 2.0 FTE (MPCV)

1.0 FTE (ISS)

Travel: \$20,000 - 12 trips (9 MPCV, 3 ISS).

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO2-13  | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.3   |                      |
| <b>Title:</b> Human Space Flight Network Operations Integration   |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359  | 11/06/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 11/06/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 11/16/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 11/21/2012           |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359  | 11/20/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604  | 01/10/2013           |
| COTR  | Lowery, James           | (281) 483-1064  | 01/15/2013           |
| NASA Contracts Officer  | Maclea, Cynthia         | (281) 244-5903  | 01/15/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclea</i>   |                         | <b>Date</b> <i>1/15/2013</i>  |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO2-13 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original |                | (b) (4)  |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

Total Value (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-T02-13 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated service
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

### **2.2 NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 1.93 FTE (MPCV)

1.00 FTE (ISS)

0.07 FTE (SCaN)

Travel: \$20,000 - 12 trips (9 MPCV, 3 ISS).

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T02-13 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**IN POP BASELINE:** NO

**PSLA:** None Specified

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>            | <u>Amount</u>     |
|-----------------------|-------------------|
| 240296.07.10.01       | (b) (4)           |
| 609524.07.01.02.07.30 |                   |
| 747797.07.06.30.10.01 |                   |
| <b>WBS Total:</b>     | <b>\$ (b) (4)</b> |

NNJ09HD46C  
Task/Delivery Order Cost Analysis  
FDOC-TO 02-13-REV. 1

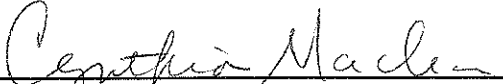
**Introduction**

The Facilities Development and Operations Contract (FDOC) specifies technical, managerial, and administrative work needed to ensure the availability, integrity, and reliability of mission operations facilities supporting NASA human space flight programs requiring mission operations support. The objective of this contract is to consolidate efforts across the facilities covered under FDOC in order to maximize synergy for hardware and software development, modification, sustaining, maintenance, reconfiguration, and operations for the purpose of reducing cost without compromising facility functionality and performance.

FDOC utilizes the Space Program Integrated Contract Environment (SPICE) to process, review, and approve T/DOs. A print-screen can be found in each T/DO file showing the applicable T/DO's final approvals.

*This effort is to issue a task/delivery order under existing requirements in FDOC and was therefore not competed. The NTE value for IDIQ delivery orders under the 4.75-year base period of performance is \$96,472,550. The maximum number of available LOE hours is 1,508,636.*

There is no change to cost or requirements. This mod is to update the funding split between MPCV and ISS. There is no change to the overall cost or EP support required.

  
Cynthia Maclean, Contracting Officer

11/15/13  
Date

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T02-13 | <b>Mod:</b><br>I |
|---|--|------------------|

FDOC-T02-13 FDOC Total Cost Estimate: \$ (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2013</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            |                            |
| <b>LABOR:</b>     | (b) (4)            |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    | \$ (b) (4)         | \$ (b) (4)                 |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO3-13        | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> UA - System Engineering and Integration Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc: |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Leblanc, Troy           | (281) 244-0279                                  | 07/09/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059                                  | 07/10/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885                                  | 07/10/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363                                  | 08/17/2012           |
| Task Order Monitor  | Leblanc, Troy           | (281) 244-0279                                  | 08/28/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604                                  | 09/21/2012           |
| COTR  | Lowery, James           | (281) 483-1064                                  | 09/21/2012           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903                                  | 09/25/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> <i>9/25/12</i>                      |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO3-13 |        | Revision: |           |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|-----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$  |
| 2013   | Original |                |          |        |           | (b) (4)        |                                      |        |           | \$(b) (4) |
| Totals:  |          |                |          |        |           |                |                                      |        |           | \$(b) (4) |

Total Value: (b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.
- 12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MSCP, UAWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support UAS activities by supplying information as requested on UAS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$16K for travel:

- ISS ? 5.5 FTE UA (allocated out of UA earmark)
- 1.5 FTE FOX support
- 1.0 FTE Special Project PM support
- 3.0 FTE MSIO Engineering Support

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO3-13   | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4  |                      |
| <b>Title:</b> UA - System Engineering and Integration Support   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Leblanc, Troy           | (281) 244-0279   | 03/14/2013           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 03/14/2013           |
| Task Order Division   | Leblanc, Troy           | (281) 244-0279   | 03/14/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 03/29/2013           |
| Task Order Monitor  | Leblanc, Troy           | (281) 244-0279   | 04/04/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513   | 04/04/2013           |
| COTR  | Lowery, James           | (281) 483-1064   | 04/04/2013           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 04/05/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> 4/5/13   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO3-13 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO3-13 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.
- 12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MSCP, UAWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support UAS activities by supplying information as requested on UAS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$16K for travel:

ISS ? 5.0 FTE UA (allocated out of UA earmark)  
 1.5 FTE FOX support  
 0.5 FTE Cloud Project support (Mod 1)  
 3.0 FTE MSIO Engineering Support

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T03-13 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T03-13 FDOC Total Cost Estimate: \$ (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2013</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            |                            |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    | \$ (b) (4)         | \$ (b) (4)                 |

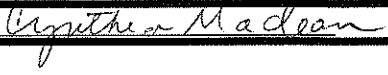
|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T03-13 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

|                                |                                 |
|--------------------------------|---------------------------------|
| <b>FACTORY:</b> None Specified | <b>PSLA:</b> None Specified     |
| <b>IN POP BASELINE:</b> NO     | <b>INCREMENTALLY FUNDED:</b> NO |

**WBS INFORMATION:**

|                       |                      |
|-----------------------|----------------------|
| <b><u>WBS</u></b>     | <b><u>Amount</u></b> |
| 609524.09.03.02.05.36 | (b) (4)              |
| <b>WBS Total:</b>     | \$ (b) (4)           |

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO4-13   | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 1.5.4.8  |                      |
| <b>Title:</b> Architectural and Engineering Support   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 11/07/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 11/16/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 11/20/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 12/04/2012           |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 12/04/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604   | 01/10/2013           |
| COTR  | Lowery, James           | (281) 483-1064   | 01/15/2013           |
| NASA Contracts Officer  | Maclea, Cynthia         | (281) 244-5903   | 01/15/2013           |
| <b>CO's Signature</b>    |                         |  | <b>Date</b> 1/15/13  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |     |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T04-13 |        | Revision:<br>1 |          |
|--|-----|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |

|      |          |
|------|----------|
| 2013 | Original |
|------|----------|

|      |   |
|------|---|
| 2013 | 1 |
|------|---|

|                |  |
|----------------|--|
| <b>Totals:</b> |  |
|----------------|--|

Total Value: (b) (4)

(b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MOFD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MOFD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

**1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
  - 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
  - 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
  - 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
  - 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

9.0 FTE ISS OTF Support. Travel Support not to exceed 15K.

1.0 FTE SCAN Data Standards support.

SCAN-CCSDS Travel support not to exceed 20K, OTF not to exceed 15K.

Materials not to exceed 5K - SCAN CCSDS, 417K - OTF (mod 1)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |   |   |  |
|---|---|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO4-13  | <b>Mod:</b><br>2   |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C  |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No  | <b>SOW Ref:</b> 1.5.4.8   |  |
| <b>Title:</b> Architectural and Engineering Support   |   |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics  | <input type="checkbox"/> Exploration  | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle | <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |  |
| Other Desc:   |   |   |  |
| <b>Schedule</b>   |   |   |  |
| <b>Start Date:</b><br>10/01/2012  |   | <b>Estimated Completion Date:</b><br>09/30/2013   |  |
| <b>Approvals</b>  |   |   |  |
| <b>Title</b>  | <b>Point of Contact</b>   | <b>Phone</b>  | <b>Date Approved</b>   |
| Task Order Monitor  | Wolfer, Eric  | (281) 483-6709  | 07/15/2013   |
| Task Order TMR  | ALLCORN, JON  | (281) 244-8402  | 07/15/2013   |
| Task Order Division   | Lindner, Daniel   | (281) 483-3885  | 07/15/2013   |
| FDOC Representative   | Beuchaw, Karen  | (281) 283-4363  | 07/22/2013   |
| Task Order Monitor  | Wolfer, Eric  | (281) 483-6709  | 07/22/2013   |
| NASA Resource Analyst   | VICENCIO, CARLITO   | (281) 244-0513  | 08/13/2013   |
| COTR  | Lowery, James   | (281) 483-1064  | 08/15/2013   |
| NASA Contracts Officer  | Maclean, Cynthia  | (281) 244-5903  | 08/26/2013   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |   |   | <b>Date</b> 8/26/13  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-13 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 2        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MOFD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MOFD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

**1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
  - 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
  - 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
  - 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
  - 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

- 9.0 FTE ISS OTF Support. Travel Support not to exceed 15K.
- 0.57 FTE SCAN Data Standards support. (MOD 2: reduction from 1.0 FTE)
- SCAN-CCSDS Travel support not to exceed 20K, OTF not to exceed 15K.
- Materials not to exceed 5K - SCAN CCSDS, 417K - OTF (mod 1)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

FDOC-TO4-13 FDOC Total Cost Estimate: \$ (b) (4)

**FY:** 2013

Grand Totals

**HOURS:**

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

\$ (b) (4)

\$ (b) (4)

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T05-13  | <b>Mod:</b><br>4     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4   |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 06/11/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402  | 06/11/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 06/11/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 06/18/2013           |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 06/18/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513  | 06/18/2013           |
| COTR  | Lowery, James           | (281) 483-1064  | 06/19/2013           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903  | 06/26/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> 6/26/13   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-13 |        | Revision:<br>4 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 2        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 3        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 4        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Support Sentinel design, development, and accreditation activities (requires security clearance)
- 20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)
- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 23.) Support MPCV/SLS ICD and Ops Concept development activities.
- 24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)
- 25.) Provide EFT-1 ISP support (approx 160 hours) (Mod 3)

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## **2.4 MATERIAL/TRAVEL**

\$40K (ISS) for travel: 10K MCCS, 30K MCC21.

Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1).

\$196k material for purchase labor (ISS)

\$215k material (ISS) (Mod 2)

Hours:

MCCS/MCC21

1.0 FTE MCCS (ISS)

12.5 FTE MCC21 (ISS)(Mod 2, Mod 3, Mod4)

0.5 FTE MOFD CCB Directive support (ISS)

1.56 FTE (MPCV) (Mod 3)

1.32 FTE Boeing Support (CST-100) (Mod 1, Mod 2, Mod 3)

0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T05-13 | <b>Mod:</b><br>4 |
|---|--|------------------|

FDOC-T05-13 FDOC Total Cost Estimate: \$ (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2013</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            |                            |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    | \$ (b) (4)         | \$ (b) (4)                 |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-13 | <b>Mod:</b><br>4 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>               | <u>Amount</u> |
|--------------------------|---------------|
| 609524.09.03.02.03.09.03 | (b) (4)       |
| 609524.09.03.02.03.36.04 |               |
| 747797.07.02.01.10.02    |               |
| 804911.02.05.1680.13     |               |
| <b>WBS Total:</b>        |               |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-13  | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4   |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 10/22/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059  | 10/22/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 10/22/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 10/31/2012           |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 10/31/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604  | 11/09/2012           |
| COTR  | Lowery, James           | (281) 483-1064  | 11/09/2012           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903  | 11/13/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         |   | <b>Date</b> 11/13/12 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T05-13 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

Total Value (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-13 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Support Sentinel design, development, and accreditation activities (requires security clearance)
- 20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)
- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 23.) Support MPCV/SLS ICD and Ops Concept development activities.
- 24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$40K (ISS) for travel: 10K MCCA, 30K MCC21.

Not to exceed (NTE) \$2.5K travel (MPCV) tri-program (Mod 1).

\$196k material for purchase labor (ISS)

Hours:

MCCA/MCC21

1.0 FTE MCCA (ISS)

21.5 FTE MCC21 (ISS)

0.5 FTE MOFD CCB Directive support (ISS)

2.0 FTE (MPCV)

0.45 FTE Boeing Support (CST-100) (NTE 78.9K) (Mod 1)

0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-13  | <b>Mod:</b><br>5     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4   |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 08/13/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402  | 08/13/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 08/14/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 08/15/2013           |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 08/15/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513  | 08/16/2013           |
| COTR  | Lowery, James           | (281) 483-1064  | 08/16/2013           |
| NASA Contracts Officer  | Maclea, Cynthia         | (281) 244-5903  | 08/26/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclea</i>   |                         |   | <b>Date</b> 8/26/13  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T05-13 |        | Revision:<br>5 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | <b>(b) (4)</b> |          |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 2        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 3        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 4        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 5        |                |          |        |           |                |                                      |        |                |          |
| <b>Totals:</b>   |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is **(b) (4)** and the Contracting Officer's signature approves the same.

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Support Sentinel design, development, and accreditation activities (requires security clearance)
- 20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)
- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 23.) Support MPCV/SLS ICD and Ops Concept development activities.
- 24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)
- 25) Provide EFT-1 ISP support (approx 160 hours) (Mod 3)

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## **2.4 MATERIAL/TRAVEL**

\$40K (ISS) for travel: 10K MCCS, 30K MCC21.

Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1).

\$196k material for purchase labor (MPCV) (Mod 5)

\$215k material (ISS) (Mod 2)

Hours:

MCCS/MCC21

1.0 FTE MCCS (ISS)

12.5 FTE MCC21 (ISS)(Mod 2, Mod 3, Mod4)

0.5 FTE MOFD CCB Directive support (ISS)

1.56 FTE (MPCV) (Mod 3)

1.32 FTE Boeing Support (CST-100) (Mod 1, Mod 2, Mod 3)

0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T05-13 | <b>Mod:</b><br>5 |
|---|--|------------------|

FDOC-T05-13 FDOC Total Cost Estimate: \$ (b) (4)

|                  |                    |                            |
|------------------|--------------------|----------------------------|
| <b>FY:</b>       | <b><u>2013</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>    | (b) (4)            |                            |
| <b>LABOR:</b>    |                    |                            |
| <b>ODC:</b>      |                    |                            |
| <b>TRAVEL:</b>   |                    |                            |
| <b>MATERIALS</b> |                    |                            |
| <b>SUPPORT:</b>  |                    |                            |
| <b>G&amp;A:</b>  |                    |                            |
| <b>FEE:</b>      |                    |                            |
| <b>AMOUNT:</b>   | \$ (b) (4)         | \$ (b) (4)                 |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-13 | <b>Mod:</b><br>5 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>               | <u>Amount</u> |
|--------------------------|---------------|
| 609524.09.03.02.03.09.03 | (b) (4)       |
| 609524.09.03.02.03.36.04 |               |
| 747797.07.02.01.10.02    |               |
| 804911.02.05.1680.13     |               |
| <b>WBS Total:</b>        | \$ (b) (4)    |

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-T05-13        | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.4                           |  |
| <b>Title:</b> System Engineering and Integration Support  |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input checked="" type="checkbox"/> Other  |
| Other Desc: MPCV/SLS  |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2012  |                                      | <b>Estimated Completion Date:</b><br>09/30/2013 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Melendrez, Amy                       | (281) 244-1134                                  | 07/11/2012   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 07/11/2012   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 07/11/2012   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 08/17/2012   |
| Task Order Monitor  | Melendrez, Amy                       | (281) 244-1134                                  | 08/23/2012   |
| NASA Resource Analyst   | Hewett, Benjamin                     | (281) 244-6604                                  | 09/21/2012   |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 09/21/2012   |
| NASA Contracts Officer  | Maclean, Cynthia                     | (281) 244-5903                                  | 09/25/2012   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      |   | <b>Date</b> 9/25/12  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T05-13 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original |                |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |
| Total Value  |          |                | (b) (4)  |        |           |                |                                      |        |           |          |

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Support Sentinel design, development, and accreditation activities (requires security clearance)
- 20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)
- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 23.) Support MPCV/SLS ICD and Ops Concept development activities.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. \$196k material for purchase labor (ISS)

Hours:

MCCS/MCC21

1 FTE MCCS (ISS)

21.5 FTE MCC21 (ISS)

0.5 FTE MOFD CCB Directive support (ISS)

2 FTE (MPCV)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-T06-13        | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.1                           |  |
| <b>Title:</b> Systems Security Engineering and Integration Support  |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input type="checkbox"/> Other   |
| Other Desc:   |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2012  |                                      | <b>Estimated Completion Date:</b><br>09/30/2013 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Wolfer, Eric                         | (281) 483-6709                                  | 07/12/2012   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 07/12/2012   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 07/12/2012   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 08/17/2012   |
| Task Order Monitor  | Wolfer, Eric                         | (281) 483-6709                                  | 08/28/2012   |
| NASA Resource Analyst   | Hewett, Benjamin                     | (281) 244-6604                                  | 09/21/2012   |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 09/21/2012   |
| NASA Contracts Officer  | Maclean, Cynthia                     | (281) 244-5903                                  | 09/25/2012   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      |   | <b>Date</b> 9/25/12  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO6-13 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original |                | (b) (4)  |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

Total Value: (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

**1.2 OBJECTIVE**

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MOFD systems. Mission systems definition includes, TS, MCCS, SSTF, SMS, Support Systems and other systems identified by MOFD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MOFD security documents.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Provide Program level ground system security support for the ISS program. Personnel will provide security interface both internal to MOFD and external to MOFD regarding all aspects of IT and COMSEC security, and will act on behalf of MOFD.

Provide Security Services for MOFD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the COMSEC Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MOFD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

- 1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.
- 2.) Provide leadership in prototyping proposed security controls in both OTF and GSDE systems.
- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.
- 4.) Analyze RFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.
- 5.) Prototype proposals/requirements and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

**2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MOFD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

- 1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)
- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## **2.4 MATERIAL/TRAVEL**

4.0 FTE as defined below:

3.7 FTE - ISS

0.3 FTE - MPCV

Travel not to exceed \$5.5K(ISS)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

|   |  |   |                      |
|---|--|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |  | <b>Task Order Number:</b><br>FDOC-TO11-13       | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |  | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No   | <b>SOW Ref:</b> 3.3                             |                      |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of MPCV  |  |   |                      |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |   |                      |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input checked="" type="checkbox"/> Other |   |                      |
| Other Desc: MPCV  |  |   |                      |
| <b>Schedule</b>   |  |   |                      |
| <b>Start Date:</b><br>10/01/2012  |  | <b>Estimated Completion Date:</b><br>09/30/2013 |                      |
| <b>Approvals</b>  |  |   |                      |
| <b>Title</b>  | <b>Point of Contact</b>  | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | ALLCORN, JON   | (281) 244-8402                                  | 04/23/2013           |
| Task Order TMR  | Macha, Mitchell  | (281) 483-7059                                  | 04/11/2013           |
| Task Order Division   | Lindner, Daniel  | (281) 483-3885                                  | 04/15/2013           |
| FDOC Representative   | Beuchaw, Karen   | (281) 283-4363                                  | 04/23/2013           |
| Task Order Monitor  | ALLCORN, JON   | (281) 244-8402                                  | 04/25/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO  | (281) 244-0513                                  | 05/02/2013           |
| COTR  | Lowery, James  | (281) 483-1064                                  | 05/06/2013           |
| NASA Contracts Officer  | Maclean, Cynthia   | (281) 244-5903                                  | 5/15/2013            |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |  |   | <b>Date</b> 5/15/13  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |  |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |             | Task Order<br>Number:<br>FDOC-TO11-13 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|-------------|---------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                            | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | (b) (4)        |          |        |           |             |                                       |        |                |          |
| 2013   | 1        |                |          |        |           |             |                                       |        |                |          |
| Totals:  |          |                |          |        |           |             |                                       |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |   |                  |
|--|---|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO11-13 | <b>Mod:</b><br>1 |
|--|---|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects (e.g. MCC-21, TS-21, UA-21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOFD CCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

### **2.2 NASA INPUT REQUIREMENTS**

- Access to all MOP-level requirements and design documentation

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE**

## **PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

LOE support is 1.0 FTE October 2012 through September 2013. - MPCV funding (Mod1)

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

### **4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |   |                  |
|---|---|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO11-13 | <b>Mod:</b><br>1 |
|---|---|------------------|

FDOC-TO11-13 FDOC Total Cost Estimate: \$ (b) (4)

**FY:** 2013 Grand Totals

**HOURS:** (b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:** (b) (4)

|   |   |                  |
|---|---|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T011-13 | <b>Mod:</b><br>1 |
|---|---|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

747797.07.01.02.10.01

(b) (4)

**WBS Total:**

\$ (b) (4)

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO4-13   | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 1.5.4.8  |                      |
| <b>Title:</b> Architectural and Engineering Support   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2012  |                         | <b>Estimated Completion Date:</b><br>09/30/2013  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 07/12/2012           |
| Task Order TMR  | Macha, Mitchell         | (281) 483-7059   | 07/12/2012           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 07/12/2012           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 08/17/2012           |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 08/28/2012           |
| NASA Resource Analyst   | Hewett, Benjamin        | (281) 244-6604   | 08/30/2012           |
| COTR  | Lowery, James           | (281) 483-1064   | 08/31/2012           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 09/07/2012           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> 9/7/12   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO4-13 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original | (b) (4)        |          |           |              |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |           |              |                |                                      |        |           |          |

Total Value: (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-13 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MOFD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MOFD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

### **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

- 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
- 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
- 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
- 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.
- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

9.0 FTE ISS OTF Support. Travel Support not to exceed 15K.

1.0 FTE SCAN Data Standards support.

SCAN-CCSDS Travel support not to exceed 20K, OTF not to exceed 15K.

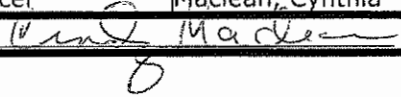
Materials not to exceed 5K - SCAN CCSDS, 450K - OTF

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

|   |   |   |                      |
|---|---|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO5-13        | <b>Mod:</b><br>2     |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No  | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support  |   |   |                      |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |   |                      |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS |   |                      |
| <b>Schedule</b>   |   |   |                      |
| <b>Start Date:</b><br>10/01/2012  |   | <b>Estimated Completion Date:</b><br>09/30/2013 |                      |
| <b>Approvals</b>  |   |   |                      |
| <b>Title</b>  | <b>Point of Contact</b>   | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy  | (281) 244-1134                                  | 03/07/2013           |
| Task Order TMR  | Macha, Mitchell   | (281) 483-7059                                  | 03/08/2013           |
| Task Order Division   | Lindner, Daniel   | (281) 483-3885                                  | 03/08/2013           |
| FDOC Representative   | Beuchaw, Karen  | (281) 283-4363                                  | 03/20/2013           |
| Task Order Monitor  | Melendrez, Amy  | (281) 244-1134                                  | 03/20/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO   | (281) 244-0513                                  | 03/21/2013           |
| COTR  | Lowery, James   | (281) 483-1064                                  | 03/21/2013           |
| NASA Contracts Officer  | Maclean, Cynthia  | (281) 244-5903                                  | 03/28/2013           |
| <b>CO's Signature</b>    |   | <b>Date</b> 3/29/13                             |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-13 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 2        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Support Sentinel design, development, and accreditation activities (requires security clearance)
- 20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)
- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 23.) Support MPCV/SLS ICD and Ops Concept development activities.
- 24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

\$40K (ISS) for travel: 10K MCCA, 30K MCC21.  
Not to exceed (NTE) \$2.5K travel (MPCV) tri-program (Mod 1).  
\$196k material for purchase labor (ISS)  
\$215k material (ISS) (Mod 2)

Hours:

MCCA/MCC21

1.0 FTE MCCA (ISS)

19.5 FTE MCC21 (ISS)(Mod 2)

0.5 FTE MOFD CCB Directive support (ISS)

2.0 FTE (MPCV)

0.32 FTE Boeing Support (CST-100) (NTE 78.9K) (Mod 1, Mod 2)

0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

**Facilities Development and Operations Contract**

FDOC Cost Estimate

**Task Order Number:**

FDOC-T05-13

**Mod:**

2

FDOC-T05-13 FDOC Total Cost Estimate: \$ (b) (4)

**FY:**2013Grand Totals**HOURS:**

(b) (4)

**LABOR:****ODC:****TRAVEL:****MATERIALS:****SUPPORT:****G&A:****FEE:****AMOUNT:**

\$ (b) (4)

\$ (b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-13 | <b>Mod:</b><br>2 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>               | <u>Amount</u> |
|--------------------------|---------------|
| 609524.09.03.02.03.09.03 | (b) (4)       |
| 609524.09.03.02.03.36.04 |               |
| 747797.07.02.01.10.02    |               |
| 804911.02.05.1680.13     |               |
| <b>WBS Total:</b>        |               |

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO5-13        | <b>Mod:</b><br>3   |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.4                           |  |
| <b>Title:</b> System Engineering and Integration Support  |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input checked="" type="checkbox"/> Other  |
| Other Desc: MPCV/SLS  |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2012  |                                      | <b>Estimated Completion Date:</b><br>09/30/2013 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Melendrez, Amy                       | (281) 244-1134                                  | 04/03/2013   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 04/04/2013   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 04/04/2013   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 04/23/2013   |
| Task Order Monitor  | Melendrez, Amy                       | (281) 244-1134                                  | 04/23/2013   |
| NASA Resource Analyst   | VICENCIO, CARLITO                    | (281) 244-0513                                  | 04/23/2013   |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 05/06/2013   |
| NASA Contracts Officer  | Maclea, Cynthia                      | (281) 244-5903                                  | 5/7/13   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      |   | <b>Date</b> 5/7/13   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-13 |        | Revision:<br>3 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2013   | Original |                | (b) (4)  |        |           |                |                                      |        |                |          |
| 2013   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 2        |                |          |        |           |                |                                      |        |                |          |
| 2013   | 3        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Support Sentinel design, development, and accreditation activities (requires security clearance)
- 20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)
- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 23.) Support MPCV/SLS ICD and Ops Concept development activities.
- 24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)
- 25.) Provide EFT-1 ISP support (approx 160 hours) (Mod 3)

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

## **2.4 MATERIAL/TRAVEL**

\$40K (ISS) for travel: 10K MCCA, 30K MCC21.

Not to exceed (NTE) \$2.5K travel (MPCV) tri-program (Mod 1).

\$196k material for purchase labor (ISS)

\$215k material (ISS) (Mod 2)

Hours:

MCCA/MCC21

1.0 FTE MCCA (ISS)

14.5 FTE MCC21 (ISS)(Mod 2, Mod 3)

0.5 FTE MOFD CCB Directive support (ISS)

1.56 FTE (MPCV) (Mod 3)

1.32 FTE Boeing Support (CST-100) (Mod 1, Mod 2, Mod 3)

0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |                                      |   |   |
|---|--------------------------------------|---|---|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO8-13        | <b>Mod:</b>                                   |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |   |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.7                           |   |
| <b>Title:</b> Alternate Facility Manager  |                                      |   |   |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External             |
|   |                                      | <input type="checkbox"/> Science                | <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science              |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input type="checkbox"/> Other                |
| Other Desc:   |                                      |   |   |
| <b>Schedule</b>   |                                      |   |   |
| <b>Start Date:</b><br>10/01/2012  |                                      | <b>Estimated Completion Date:</b><br>09/30/2013 |   |
| <b>Approvals</b>  |                                      |   |   |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>                          |
| Task Order Monitor  | Bauer, Angela                        | (281) 483-1398                                  | 06/29/2012                                    |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 07/09/2012                                    |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 07/09/2012                                    |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 08/17/2012                                    |
| Task Order Monitor  | Bauer, Angela                        | (281) 483-1398                                  | 08/28/2012                                    |
| NASA Resource Analyst   | Hewett, Benjamin                     | (281) 244-6604                                  | 08/30/2012                                    |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 08/31/2012                                    |
| NASA Contracts Officer  | Maclean, Cynthia                     | (281) 244-5903                                  | 09/07/2012                                    |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      | <b>Date</b> 9/7/12                              |   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |   |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-T08-13 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original | (b) (4)        |          |           |              |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |           |              |                |                                      |        |           |          |
| Total Value  |          | (b) (4)        |          |           |              |                |                                      |        |           |          |

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO8-13 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide assistance to or act as the Facility Manager.

### **1.2 OBJECTIVE**

Ensure that safety, operations and facility support issues are resolved in a timely manner.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between DD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBS)
- Respond to Hot and Cold Calls
- Respond to Building Issues
- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning
- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)
- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)
- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance, operations, and engineering. This effort includes activities such as analysis and integration
- Support continuous improvement efforts to improve overall efficiency of facility operations. This effort includes activities such as process improvements and design reviews
- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

### **2.2 NASA INPUT REQUIREMENTS**

None required.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE  
SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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**2.4 MATERIAL/TRAVEL**

Labor: 2 FTEs with facility split as follows:

1 FTE - ISS - MCCS

1 FTE - ISS - TS

Alternate Facility Manager may require travel to support Facility-related safety training and/or benchmarking activities. Travel plan not to exceed \$2K.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO9-13        | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.1                           |  |
| <b>Title:</b> Ground Segment Control Board Technical Support  |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input type="checkbox"/> Other   |
| Other Desc:   |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2012  |                                      | <b>Estimated Completion Date:</b><br>09/30/2013 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Gowda, Shashi                        | (281) 483-7057                                  | 07/02/2012   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 07/10/2012   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 07/10/2012   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 08/17/2012   |
| Task Order Monitor  | Gowda, Shashi                        | (281) 483-7057                                  | 08/28/2012   |
| NASA Resource Analyst   | Hewett, Benjamin                     | (281) 244-6604                                  | 08/30/2012   |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 08/31/2012   |
| NASA Contracts Officer  | Maclean, Cynthia                     | (281) 244-5903                                  | 09/07/2012   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      |   | <b>Date</b> 9/7/12   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO9-13 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original | (b) (4)        |          |           |              |                |                                      |        |           |          |
| Totals:  |          | (b) (4)        |          |           |              |                |                                      |        |           |          |

Total Value (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO9-13 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide technical support to the Ground Segment Control Board (GSCB)

### **1.2 OBJECTIVE**

Ensure all GSCB activities are supported

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support
- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- Support for IP End-to-End test coordination
- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
- IP Network requirements and implementation coordination

### **2.2 NASA INPUT REQUIREMENTS**

All NASA Programmatic requirements.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                                 |                         |  |
|---------------------------------|-------------------------|--|
| 1. As Identified to fulfill 2.1 | Per negotiated schedule |  |
|---------------------------------|-------------------------|--|

### **2.4 MATERIAL/TRAVEL**

Labor: 1.5 FTEs  
100% ISS

International trips not exceed 10K.

Domestic trips not to exceed 6K.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |   |   |  |
|---|---|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO10-13   | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C  |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No  | <b>SOW Ref:</b> 3.3.6   |  |
| <b>Title:</b> COMSEC Operations   |   |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics  | <input type="checkbox"/> Exploration  | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle | <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |  |
| Other Desc:   |   |   |  |
| <b>Schedule</b>   |   |   |  |
| <b>Start Date:</b><br>10/01/2012  |   | <b>Estimated Completion Date:</b><br>09/30/2013   |  |
| <b>Approvals</b>  |   |   |  |
| <b>Title</b>  | <b>Point of Contact</b>   | <b>Phone</b>  | <b>Date Approved</b>   |
| Task Order Monitor  | Bauer, Angela   | (281) 483-1398  | 06/29/2012   |
| Task Order TMR  | Macha, Mitchell   | (281) 483-7059  | 07/09/2012   |
| Task Order Division   | Lindner, Daniel   | (281) 483-3885  | 07/09/2012   |
| FDOC Representative   | Beuchaw, Karen  | (281) 283-4363  | 08/17/2012   |
| Task Order Monitor  | Bauer, Angela   | (281) 483-1398  | 08/28/2012   |
| NASA Resource Analyst   | Hewett, Benjamin  | (281) 244-6604  | 08/30/2012   |
| COTR  | Lowery, James   | (281) 483-1064  | 08/31/2012   |
| NASA Contracts Officer  | Maclean, Cynthia  | (281) 244-5903  | 09/07/2012   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |   | <b>Date</b> <i>9/7/12</i>   |  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |   |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO10-13 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|---------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                         | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original | (b) (4)        |          |           |              |                |                                       |        |           |          |
| Totals:  |          | (b) (4)        |          |           |              |                |                                       |        |           |          |
| Total Value  |          | (b) (4)        |          |           |              |                |                                       |        |           |          |

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO10-13 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide 24/7 operations and maintenance support for the MCCA COMSEC.

### **1.2 OBJECTIVE**

Provide COMSEC support for all MCCA encryption/ and other Federal and DoD requirements for secure communications.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

The Contractor shall comply with Federal and DoD requirements for secure communications, utilizing the COMSEC system. These systems shall provide for classified and sensitive but unclassified (SBU) communications using administrative and physical controls. Refer to Attachment J-2, Applicable Documents.

The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure communications.

The Contractor shall provide encryption key management services, in accordance with secure communications requirements.

The Contractor shall provide for proper handling, storage, and destruction of classified, SBU and COMSEC materials and documentation.

The Contractor shall maintain the classified messaging capability, including associated encryption key management services, storage of classified and sensitive documentation, and the interfaces to the classified point to point circuits.

The Contractor shall provide support for the daily operations and maintenance of the Secret Internet Protocol Router System (SIPRNET).

The Contractor shall provide support for the daily operations and maintenance of the Space Shuttle and International Space Station Command Encryption Systems.

### **2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Specific Federal secure communications documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1. NSTISSI 4005 ? Safeguarding and Control of Communications Security Material.
2. NSTISSI 4000 ? Cryptographic Equipment Maintenance and Training.
3. NSTISSI 3005 ? Safeguarding and Control of Data Encryption Standard (DES) Equipment and Associated Unclassified Communications Security Aids.
4. NSTISSI 4001 ? Controlled COMSEC Items (CCI).
5. NSTISSI 4004 ? Routine Destruction and Emergency Protection of COMSEC Material.
6. NSTISSI 7000 ? TEMPEST Countermeasures for Facilities
7. NSTISSAM TEMPEST/2-95 ? Red/Black Installation Guidance
8. FIPS Pub. 140-2 ? Security Requirements for Cryptographic Modules.
9. Special Publication 800-21 ? Guideline for Implementing Cryptography in the Federal Government.
10. FIPS Pub. 197 ? Advanced Encryption Standard (AES), specifies the AES algorithm.
11. FIPS Pub. 46-3 ? Data Encryption Standard (DES)
12. FIPS Pub. 81 ? DES Modes of Operation
13. FIPS Pub. 74 ? Guidelines for Implementing and Using DES
14. NASA/USAF Interagency Agreement for COMSEC, Attachment F-1, COMSEC Maintenance Support Plan, dated 6/83.
15. NSTS-22241 ? COMSEC Key Control Agreement.
16. COMSEC Maintenance Support Plan, Attachment F-1
17. NASA Policy and Requirement (NPR) 2810 (Current Revision)
18. NASA Communications Security (COMSEC) Classification Guide.
19. NASA Center Office of Records (COR) COMSEC Standard Operating Procedures (CSOP) Complete Set

Working knowledge:

1. ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

2. Maintenance and associated Installation of the ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

3.) MCCS Comsec facility and interfaces to MCCS.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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**2.4 MATERIAL/TRAVEL**

Labor:

8 FTE - ISS

Travel: Travel will be required to support COMSEC requirements. COMSEC travel should not to exceed \$6K. This travel budget is planned to accommodate:

- 2 domestic trips for BCC/HOSC activation and Hurricane support. Each trip is a 1 week duration for 2 people.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO11-13       | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 13  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3                             |  |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of MPCV  |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input type="checkbox"/> Station                | <input checked="" type="checkbox"/> Other  |
| Other Desc: MPCV  |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2012  |                                      | <b>Estimated Completion Date:</b><br>09/30/2013 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Ward, Dawn                           | (281) 483-6145                                  | 07/11/2012   |
| Task Order TMR  | Macha, Mitchell                      | (281) 483-7059                                  | 07/11/2012   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 07/11/2012   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 08/17/2012   |
| Task Order Monitor  | Ward, Dawn                           | (281) 483-6145                                  | 08/28/2012   |
| NASA Resource Analyst   | Hewett, Benjamin                     | (281) 244-6604                                  | 08/30/2012   |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 08/31/2012   |
| NASA Contracts Officer  | Maclean, Cynthia                     | (281) 244-5903                                  | 09/07/2012   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      |   | <b>Date</b> <i>9/7/12</i>  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO11-13 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|---------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                         | G&A \$ | Fee \$    | Total \$ |
| 2013   | Original |                |          |           |              |                |                                       |        |           |          |
| Totals:  |          |                |          |           |              |                |                                       |        |           |          |
| Total Value  |          |                |          |           |              |                |                                       |        |           |          |

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO11-13 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects(e.g. MCC-21, TS-21, UA-21) for applicability to the MOP baseline.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Determine Cradle schema change impacts to the MOP, advocate MOP needs and propose schema updates that represent MOP's interests.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOFD CCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on designated IRDs.

### **2.2 NASA INPUT REQUIREMENTS**

- Access to Cradle tool and training

- Access to all MOP-level requirements and design documentation

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

LOE support is 1.0 FTE October 2012 through March 2013; 0.5 FTE April 2013 through September 2013. - MPCV funding.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

**4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |   |                      |
|---|--|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |  | <b>Task Order Number:</b><br>FDOC-TO1-14        | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |  | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No   | <b>SOW Ref:</b> 3.3.1.2                         |                      |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)   |  |   |                      |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |   |                      |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |   |                      |
| <b>Schedule</b>   |  |   |                      |
| <b>Start Date:</b><br>10/01/2013  |  | <b>Estimated Completion Date:</b><br>09/30/2014 |                      |
| <b>Approvals</b>  |  |   |                      |
| <b>Title</b>  | <b>Point of Contact</b>  | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Hervey, Jewel  | (281) 483-0359                                  | 06/20/2013           |
| Task Order TMR  | ALLCORN, JON   | (281) 244-8402                                  | 07/10/2013           |
| Task Order Division   | Lindner, Daniel  | (281) 483-3885                                  | 07/10/2013           |
| FDOC Representative   | Beuchaw, Karen   | (281) 283-4363                                  | 07/22/2013           |
| Task Order Monitor  | Hervey, Jewel  | (281) 483-0359                                  | 08/07/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO  | (281) 244-0513                                  | 08/12/2013           |
| COTR  | Lowery, James  | (281) 483-1064                                  | 08/12/2013           |
| NASA Contracts Officer  | Macleon, Cynthia   | (281) 244-5903                                  | 08/16/2013           |
| <b>CO's Signature</b> <i>Cynthia Macleon</i>  |  | <b>Date</b> 8/16/13                             |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |  |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO1-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

**1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs
- Gather and consolidate communications requirements into draft versions of the MSRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements
- Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs
- Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA

**2.2 NASA INPUT REQUIREMENTS**

International Space Station Operational Communication Overview (IOCO)

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

6 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 4)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

Labor: 1 FTE (.76 ISS, 0.24 MPCV)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-TO1-14 FDOC Total Cost Estimate: (b) (4)

| <b>FY:</b>        | <b><u>2014</u></b> | <b><u>Grand Totals</u></b> |
|-------------------|--------------------|----------------------------|
| <b>HOURS:</b>     | <b>(b) (4)</b>     |                            |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO2-14        | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 14   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.3                           |                      |
| <b>Title:</b> Human Space Flight Network Operations Integration  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2013   |                         | <b>Estimated Completion Date:</b><br>09/30/2014 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 06/20/2013           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/10/2013           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/10/2013           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4363                                  | 07/22/2013           |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 08/07/2013           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/07/2013           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 08/08/2013           |
| NASA Contracts Officer   | Maclean, Cynthia        | (281) 244-5903                                  | 08/12/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>   |                         |   | <b>Date</b> 8/12/13  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO2-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of

(b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

**1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

**2.2 NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 1.92 FTE (MPCV)

1.08 FTE (ISS)

Travel: \$20,000 - 12 trips (9 MPCV, 3 ISS).

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-T02-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|  |                         |   |                           |
|--|-------------------------|---|---------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO2-14        | <b>Mod:</b><br>1          |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                           |
| <b>GFY:</b> 14   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.3                           |                           |
| <b>Title:</b> Human Space Flight Network Operations Integration  |                         |   |                           |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                           |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other         Other Desc: MPCV, SLS, GSDO                               |                         |   |                           |
| <b>Schedule</b>  |                         |   |                           |
| <b>Start Date:</b><br>10/01/2013   |                         | <b>Estimated Completion Date:</b><br>09/30/2014 |                           |
| <b>Approvals</b>   |                         |   |                           |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b>      |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 06/19/2014                |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/01/2014                |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/11/2014                |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 07/21/2014                |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 07/23/2014                |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 07/23/2014                |
| COTR   | Lowery, James           | (281) 483-1064                                  | 07/23/2014                |
| NASA Contracts Officer   | BOLDEN, JANNETTE        | (281) 244-5854                                  | 08/04/2014                |
| <b>CO's Signature</b> <i>Jannette Bolden</i>   |                         |   | <b>Date</b> <i>8/4/14</i> |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                           |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T02-14 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2014   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2014   | 1        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

**1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

**2.2 NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 1.92 FTE (MPCV)

1.08 FTE (ISS)

Travel: 15 trips (12 MPCV, 3 ISS).

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-TO2-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T03-14   | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4  |                      |
| <b>Title:</b> UA - System Engineering and Integration Support   |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 06/27/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402   | 06/27/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 06/28/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 07/22/2013           |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 08/02/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513   | 08/02/2013           |
| COTR  | Lowery, James           | (281) 483-1064   | 08/02/2013           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 08/08/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> 8/8/13   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO3-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

(b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.
- 12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, UAWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required.
- 16.) Support UAS activities by supplying information as requested on UAS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

ISS ? 4.0 FTE Special Projects

Travel requirements: Not to exceed \$5K (ISS)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-T03-14 FDOC Total Cost Estimate: \$ (b) (4)

| <b>FY:</b> | <b><u>2014</u></b> | <b><u>Grand Totals</u></b> |
|------------|--------------------|----------------------------|
|------------|--------------------|----------------------------|

|               |     |     |
|---------------|-----|-----|
| <b>HOURS:</b> | (b) | (4) |
|---------------|-----|-----|

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T04-14  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.5   |                      |
| <b>Title:</b> Architectural and Engineering Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc: |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709  | 06/27/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402  | 06/27/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 06/28/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 07/22/2013           |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709  | 08/02/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513  | 08/02/2013           |
| COTR  | Lowery, James           | (281) 483-1064  | 08/02/2013           |
| NASA Contracts Officer  | Macleon, Cynthia        | (281) 244-5903  | 08/08/2013           |
| <b>CO's Signature</b> <i>Cynthia Macleon</i>  |                         | <b>Date</b> 8/8/13  |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO4-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

(b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch(DD2) including the Operation Technology Facility (OTF).

The OTF is a NASA-managed MSD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in MSD facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MSD goals.

This includes monitoring, assessing, and functioning as a member of MSD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MSD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MSD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MSD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

**1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MSD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MSD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MSD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
  - 1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.
  - 1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.
  - 1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.
  - 1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.
- 2.) Support prototype projects, assessments, and presentations as requested.
- 3.) Provide Weekly status reports.

- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MSD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

## **2.2 NASA INPUT REQUIREMENTS**

All DD requirements.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 8

3 FTE - OTF Administrative Support (ISS)

4 FTE - Special Projects (ISS)

1 FTE - SCAN-CCSDS Data Standards support (Track CCSDS support separately)

Travel requirements

SCAN-CCSDS Travel support not to exceed \$20K, OTF not to exceed \$10K (ISS)

Trip destination: International and domestic (CCSDS), domestic (OTF)

Trip purpose: Support CCSDS Data Standards Working Group and operations technology research and collaboration

Trip duration: N/A

Materials not to exceed \$5K - SCAN CCSDS, \$300K ? Special Projects

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-T04-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |                         |   |                              |
|---|-------------------------|---|------------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-14  | <b>Mod:</b>                  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                              |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4   |                              |
| <b>Title:</b> System Engineering and Integration Support  |                         |   |                              |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                              |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100 |                              |
| <b>Schedule</b>   |                         |   |                              |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014   |                              |
| <b>Approvals</b>  |                         |   |                              |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b>         |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 06/18/2013                   |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402  | 06/18/2013                   |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 06/18/2013                   |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 07/22/2013                   |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 08/07/2013                   |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513  | 08/07/2013                   |
| COTR  | Lowery, James           | (281) 483-1064  | 08/08/2013                   |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903  | 08/14/2013                   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         |   | <b>Date</b> <i>8/14/2013</i> |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                              |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T05-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

(b) (4)

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-14 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

- \$5K (ISS) for travel
- \$200k material for purchase labor (ISS)

Personnel:

10 FTE ? MCCS (ISS)

2.5 FTE ? MCCS (MPCV)

2.0 FTE ? MCCS (CST-100) equivalent thru May 2014

0.5 FTE ? MSD CCB Directive 1 Schedule support (ISS)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**


Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T05-14 | <b>Mod:</b> |
|---|--|-------------|

FDOC-T05-14 FDOC Total Cost Estimate: (b) (4)

|            |                    |                            |
|------------|--------------------|----------------------------|
| <b>FY:</b> | <u><b>2014</b></u> | <u><b>Grand Totals</b></u> |
|------------|--------------------|----------------------------|

|                   |     |     |
|-------------------|-----|-----|
| <b>HOURS:</b>     | (b) | (4) |
| <b>LABOR:</b>     |     |     |
| <b>ODC:</b>       |     |     |
| <b>TRAVEL:</b>    |     |     |
| <b>MATERIALS:</b> |     |     |
| <b>SUPPORT:</b>   |     |     |
| <b>G&amp;A:</b>   |     |     |
| <b>FEE:</b>       |     |     |
| <b>AMOUNT:</b>    |     |     |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-T05-14  | <b>Mod:</b><br>3     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C  |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4   |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100 |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014   |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>  | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 11/22/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402  | 11/22/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885  | 11/22/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363  | 12/05/2013           |
| Task Order Monitor  | Melendrez, Amy          | (281) 244-1134  | 12/06/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513  | 12/06/2013           |
| COTR  | Lowery, James           | (281) 483-1064  | 12/06/2013           |
| NASA Contracts Officer  | Jannette Bolden         | (281) 244-5854  | 12/11/2013           |
| <b>CO's Signature</b>    |                         |   | <b>Date</b> 12/12/13 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |             | Task Order<br>Number:<br>FDOC-TO5-14 |        | Revision:<br>3 |          |
|--|----------|----------------|----------|--------|-----------|-------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2014   | Original | (b) (4)        |          |        |           |             |                                      |        |                |          |
| 2014   | 1        |                |          |        |           |             |                                      |        |                |          |
| 2014   | 2        |                |          |        |           |             |                                      |        |                |          |
| 2014   | 3        |                |          |        |           |             |                                      |        |                |          |
| Totals:  |          |                |          |        |           |             |                                      |        |                |          |

**NOTE:** The purpose of TO5-14, Revision 3 is to reduce the number of FTEs from 10 to 4.5 (1 Engineer 3 and 4.5 Engineer 4) in support of MCC-21 requirements. The Contracting Officer's signature approves the reduction in total cost for TO5-14, Rev 3 by (b) (4). As a result of this revision, the FDOC5-14 total estimated cost is (b) (4).

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-14 | <b>Mod:</b><br>3 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$5K for travel (ISS MCC21)

\$200k material for purchase labor (ISS MCC21)

Personnel:

4.5 FTE â€" MCCS (ISS MCC21)

2.5 FTE â€” MCCS (ISS MCCS)

2.0 FTE â€” MCCS (CST-100 MCCS) equivalent thru May 2014

0.5 FTE â€” MSD CCB Directive 1 Schedule support (ISS MCC21)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-T05-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO5-14 | <b>Mod:</b><br>3 |
|---|--|------------------|


**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO5-14        | <b>Mod:</b><br>4     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 14   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100 |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2013   |                         | <b>Estimated Completion Date:</b><br>09/30/2014 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Cobb, Carey             | (281) 244-8564                                  | 03/04/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 03/04/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 03/04/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 03/10/2014           |
| Task Order Monitor   | Cobb, Carey             | (281) 244-8564                                  | 03/12/2014           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 03/12/2014           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 03/12/2014           |
| NASA Contracts Officer   | BOLDEN, JANNETTE        | (281) 244-5854                                  |                      |
| <b>CO's Signature</b>   |                         |   | <b>Date</b> 3/17/14  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T05-14 |        | Revision:<br>4 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2014   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2014   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2014   | 2        |                |          |        |           |                |                                      |        |                |          |
| 2014   | 3        |                |          |        |           |                |                                      |        |                |          |
| 2014   | 4        |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-14 | <b>Mod:</b><br>4 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

\$5K for travel (ISS MCC21)

\$200k material for purchase labor (ISS MCC21)

Personnel:

4.5 FTE " MCCS (ISS MCC21)

2.5 FTE MCCS (ISS MCCS) from 10/1/13 through 3/15/14 and reducing to 1.5 FTE from 3/16/14 through 9/30/14

1.405 FTE MCCS (CST-100 MCCS) from 10/1/13 thru 8/31/14

0.5 FTE MSD CCB Directive 1 Schedule support from 10/1/13 through 4/30/14 (ISS MCC21)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-T05-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO5-14 | <b>Mod:</b><br>4 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**PSLA:** None Specified

**IN POP BASELINE:** NO

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-14        | <b>Mod:</b><br>5     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100 |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 07/29/2014           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402                                  | 07/29/2014           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885                                  | 07/29/2014           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 08/07/2014           |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 08/07/2014           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/11/2014           |
| COTR  | Lowery, James           | (281) 483-1064                                  | 08/13/2014           |
| NASA Contracts Officer  | NEVELS, CHRYSTAL        | (281) 792-7842                                  | 08/14/2014           |
| <b>CO's Signature</b>   |                         | <b>Date</b>                                     |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                    |          |        |           |             | Task Order<br>Number:<br>FDOC-TO5-14 | Revision:<br>5 |        |          |
|--|----------|--------------------|----------|--------|-----------|-------------|--------------------------------------|----------------|--------|----------|
| Fiscal<br>Year   | Mod      | Labor              | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                           | G&A \$         | Fee \$ | Total \$ |
| 2014   | Original | <div>(b) (4)</div> |          |        |           |             |                                      |                |        |          |
| 2014   | 1        |                    |          |        |           |             |                                      |                |        |          |
| 2014   | 2        |                    |          |        |           |             |                                      |                |        |          |
| 2014   | 3        |                    |          |        |           |             |                                      |                |        |          |
| 2014   | 4        |                    |          |        |           |             |                                      |                |        |          |
| 2014   | 5        |                    |          |        |           |             |                                      |                |        |          |
| Totals:  |          |                    |          |        |           |             |                                      |                |        |          |

**NOTE:** The FDOC total estimated cost is \$ (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCA Work plan.
- 12.) Generate and maintain a list of potential MCCA architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCA architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCA activities by supplying information as requested on MCCA.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.
- 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

\$5K for travel (ISS MCC21)

\$200k material for purchase labor (ISS MCC21)

Personnel:

4.5 FTE @ MCCA (ISS MCC21)

2.5 FTE â€” MCCA (ISS MCCA) from 10/1/13 through 3/15/14 and reducing to 1.5 FTE from 3/16/14 through 9/30/14  
1.405 FTE â€” MCCA (CST-100 MCCA) from 10/1/13 thru 9/30/14.

0.5 FTE â€” MSD CCB Directive 1 Schedule support from 10/1/13 through 4/30/14 (ISS MCC21)

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO5-14 FDOC Total Cost Estimate: (b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO5-14 | <b>Mod:</b><br>5 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**IN POP BASELINE:** NO

**PSLA:** None Specified

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO6-14   | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1  |                      |
| <b>Title:</b> Systems Security Engineering and Integration Support  |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 06/27/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402   | 06/27/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 06/28/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 07/22/2013           |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709   | 08/02/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513   | 08/02/2013           |
| COTR  | Lowery, James           | (281) 483-1064   | 08/02/2013           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 08/08/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         | <b>Date</b> 8/8/13   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

|  |          |                |          |        |           |                |                                      |        |           |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO6-14 |        | Revision: |          |
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                | (b) (4)  |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

**1.2 OBJECTIVE**

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MSD systems. Mission systems definition includes, TS, MCCS, SSTF, Support Systems and other systems identified by MSD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MSD security documents.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Provide Program level ground system security support for the ISS program. Personnel will provide security interface both internal and external to MSD regarding all aspects of IT and COMSEC security, and will act on behalf of MSD.

Provide Security Services for MSD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MSD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

- 1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.
- 2.) Provide leadership in prototyping proposed security controls in both OTF and MSDE systems.
- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.
- 4.) Analyze RFC's (Internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.
- 5.) Prototype proposals/requirements and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

**2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MSD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

- 1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)
- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

4.0 FTE as defined below:

3.66 FTE - ISS

0.34 FTE - MPCV

Travel not to exceed \$5K(ISS). Trip destination: Domestic, International. Trip purpose: Program TIMs, design reviews, and Cross Cutting Operations Technology Trips/task, Training Mission Systems Security and SART specific support

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 2.6 Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

FDOC-T06-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

Date Printed: 03/21/2014

|  |                         |   |                            |
|--|-------------------------|---|----------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO6-14        | <b>Mod:</b><br>1           |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                            |
| <b>GFY:</b> 14   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1                           |                            |
| <b>Title:</b> Systems Security Engineering and Integration Support   |                         |   |                            |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                            |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                         |   |                            |
| Other Desc:  |                         |   |                            |
| <b>Schedule</b>  |                         |   |                            |
| <b>Start Date:</b><br>10/01/2013   |                         | <b>Estimated Completion Date:</b><br>09/30/2014 |                            |
| <b>Approvals</b>   |                         |   |                            |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b>       |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 03/07/2014                 |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 03/07/2014                 |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 03/07/2014                 |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 03/10/2014                 |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 03/11/2014                 |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 03/11/2014                 |
| COTR   | Lowery, James           | (281) 483-1064                                  | 03/11/2014                 |
| NASA Contracts Officer   | BOLDEN, JANNETTE        | (281) 244-5854                                  |                            |
| <b>CO's Signature</b> <i>Jannette Bolden</i>   |                         |   | <b>Date</b> <i>3/21/14</i> |

**Contents:**

Title - Signature Page  
 Estimated Resources Summary  
 Task Order Text  
   1.0 General Scope of Work  
   2.0 Task Description  
   3.0 SRMQA  
   4.0 Security Requirements  
 Estimated NASA Resources Summary

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |             | Task Order Number:<br>FDOC-TO6-14 | Revision:<br>1 |        |          |
|--|----------|----------------|----------|--------|-----------|-------------|-----------------------------------|----------------|--------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material \$ | Support \$                        | G&A \$         | Fee \$ | Total \$ |
| 2014   | Original | (b) (4)        |          |        |           |             |                                   |                |        |          |
| 2014   | 1        |                |          |        |           |             |                                   |                |        |          |
| Totals:  |          |                |          |        |           |             |                                   |                |        |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of

(b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO6-14 | <b>Mod:</b><br>1 |
|--|--|------------------|

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

**1.2 OBJECTIVE**

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MSD systems. Mission systems definition includes, TS, MCCS, SSTF, Support Systems and other systems identified by MSD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 "Facility Operations" and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MSD security documents.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Provide Program level ground system security support for the ISS program. Personnel will provide security interface both internal and external to MSD regarding all aspects of IT and COMSEC security, and will act on behalf of MSD.

Provide Security Services for MSD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the Responsible COMSEC Officer (RCO) position.

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- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.
- 4.) Analyze RFC's (Internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.
- 5.) Prototype proposals/requirements and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

**2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

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- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MSD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

- 1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)
- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

- 4.0 FTE as defined below:  
3.66 FTE - ISS  
0.34 FTE - MPCV

ISS Travel \$5K. Trip destination: Domestic, International. Trip purpose: Program TIMs, design reviews, and Cross Cutting Operations Technology Trips/task, Training Mission Systems Security and SART specific support

MPCV Travel \$5k. Trip destination: Domestic

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 2.6 Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO6-14 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-TO6-14 FDOC Total Cost Estimate: (b) (4)

FY: 2014 Grand Totals

HOURS:

LABOR:

ODC:

TRAVEL:

MATERIALS:

SUPPORT:

G&amp;A:

FEE:

AMOUNT:

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO6-14 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON****FACTORY:** None Specified**PSLA:** None Specified**IN POP BASELINE:** NO**INCREMENTALLY FUNDED:** NO**WBS INFORMATION:****WBS****Amount****WBS Total:****(b) (4)**

|   |                         |  |                       |
|---|-------------------------|--|-----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO8-14   | <b>Mod:</b>           |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                       |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.7  |                       |
| <b>Title:</b> Alternate Facility Manager  |                         |  |                       |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                       |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                       |
| Other Desc:   |                         |  |                       |
| <b>Schedule</b>   |                         |  |                       |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014  |                       |
| <b>Approvals</b>  |                         |  |                       |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b>  |
| Task Order Monitor  | Bauer, Angela           | (281) 483-1398   | 06/19/2013            |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402   | 06/19/2013            |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 06/20/2013            |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 07/22/2013            |
| Task Order Monitor  | Bauer, Angela           | (281) 483-1398   | 07/26/2013            |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513   | 07/30/2013            |
| COTR  | Lowery, James           | (281) 483-1064   | 08/08/2013            |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 08/14/2013            |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         |  | <b>Date</b> 8/14/2013 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                       |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-T08-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                | (b) (4)  |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of

(b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide assistance to or act as the Facility Manager.

**1.2 OBJECTIVE**

Ensure that safety, operations and facility support issues are resolved in a timely manner.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between DD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBs)
- Respond to Hot and Cold Calls
- Respond to Building Issues
- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning
- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)
- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)
- Develop and Submit MCCR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance, operations, and engineering. This effort includes activities such as analysis and integration
- Support continuous improvement efforts to improve overall efficiency of facility operations. This effort includes activities such as process improvements and design reviews
- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

**2.2 NASA INPUT REQUIREMENTS**

None required.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Labor: 1 FTE - ISS

Alternate Facility Manager may require travel to support Facility-related safety training and/or benchmarking activities. Travel plan not to exceed \$2K.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-T08-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO9-14   | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1  |                      |
| <b>Title:</b> Ground Segment Control Board Technical Support  |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other |                      |
| Other Desc:   |                         |  |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2013  |                         | <b>Estimated Completion Date:</b><br>09/30/2014  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Gowda, Shashi           | (281) 483-7057   | 07/08/2013           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402   | 07/10/2013           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 07/10/2013           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4363   | 07/22/2013           |
| Task Order Monitor  | Gowda, Shashi           | (281) 483-7057   | 07/31/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513   | 07/31/2013           |
| COTR  | Lowery, James           | (281) 483-1064   | 08/08/2013           |
| NASA Contracts Officer  | Maclean, Cynthia        | (281) 244-5903   | 08/28/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                         |  | <b>Date</b> 8/28/13  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO9-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                | (b) (4)  |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO9-14 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide technical support to the Ground Segment Control Board (GSCB)

### **1.2 OBJECTIVE**

Ensure all GSCB activities are supported

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and International Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support
- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- Support for IP End-to-End test coordination
- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
- IP Network requirements and implementation coordination

### **2.2 NASA INPUT REQUIREMENTS**

All NASA Programmatic requirements.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                                 |                         |  |
|---------------------------------|-------------------------|--|
| 1. As Identified to fulfill 2.1 | Per negotiated schedule |  |
|---------------------------------|-------------------------|--|

### **2.4 MATERIAL/TRAVEL**

Labor: 1.5 FTEs

100% ISS

International trips not exceed \$14K.

Domestic trips not to exceed \$6K.

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-T09-14 FDOC Total Cost Estimate: (b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO9-14 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified

**IN POP BASELINE:** NO

**PSLA:** None Specified

**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u> | <u>Amount</u> |
|------------|---------------|
| WBS Total: | (b) (4)       |

|   |                                      |   |  |
|---|--------------------------------------|---|--|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                                      | <b>Task Order Number:</b><br>FDOC-TO10-14       | <b>Mod:</b>  |
| <b>Contractor:</b> Lockheed Martin Corporation  |                                      | <b>Contract Number:</b> NNJ09HD46C              |  |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No                 | <b>SOW Ref:</b> 3.3.6                           |  |
| <b>Title:</b> COMSEC Operations   |                                      |   |  |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Exploration            | <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics | <input type="checkbox"/> Constellation          | <input type="checkbox"/> Science <input type="checkbox"/> Shuttle  |
|   | <input type="checkbox"/> SpaceComm   | <input checked="" type="checkbox"/> Station     | <input type="checkbox"/> Other   |
| Other Desc:   |                                      |   |  |
| <b>Schedule</b>   |                                      |   |  |
| <b>Start Date:</b><br>10/01/2013  |                                      | <b>Estimated Completion Date:</b><br>09/30/2014 |  |
| <b>Approvals</b>  |                                      |   |  |
| <b>Title</b>  | <b>Point of Contact</b>              | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Bauer, Angela                        | (281) 483-1398                                  | 06/19/2013   |
| Task Order TMR  | ALLCORN, JON                         | (281) 244-8402                                  | 06/19/2013   |
| Task Order Division   | Lindner, Daniel                      | (281) 483-3885                                  | 06/20/2013   |
| FDOC Representative   | Beuchaw, Karen                       | (281) 283-4363                                  | 07/22/2013   |
| Task Order Monitor  | Bauer, Angela                        | (281) 483-1398                                  | 07/26/2013   |
| NASA Resource Analyst   | VICENCIO, CARLITO                    | (281) 244-0513                                  | 07/30/2013   |
| COTR  | Lowery, James                        | (281) 483-1064                                  | 08/08/2013   |
| NASA Contracts Officer  | Maclean, Cynthia                     | (281) 244-5903                                  | 08/14/2013   |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |                                      |   | <b>Date</b> 8/14/2013  |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                                      |   |  |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO10-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                |          |        |           |                |                                       |        |           |          |
| Totals:  |          |                |          |        |           |                |                                       |        |           |          |

(b) (4)

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO10-14 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide 24/7 operations and maintenance support for the MCCA COMSEC.

### **1.2 OBJECTIVE**

Provide COMSEC support for all MCCA encryption/ and other Federal and DoD requirements for secure communications.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

The Contractor shall comply with Federal and DoD requirements for secure communications, utilizing the COMSEC system. These systems shall provide for classified and sensitive but unclassified (SBU) communications using administrative and physical controls. Refer to Attachment J-2, Applicable Documents.

The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure communications.

The Contractor shall provide encryption key management services, in accordance with secure communications requirements.

The Contractor shall provide for proper handling, storage, and destruction of classified, SBU and COMSEC materials and documentation.

The Contractor shall maintain the classified messaging capability, including associated encryption key management services, storage of classified and sensitive documentation, and the interfaces to the classified point to point circuits.

The Contractor shall provide support for the daily operations and maintenance of the Secret Internet Protocol Router System (SIPRNET).

The Contractor shall provide support for the daily operations and maintenance of the Space Shuttle and International Space Station Command Encryption Systems.

### **2.2 NASA INPUT REQUIREMENTS**

All NASA programmatic requirement documents apply. Specific Federal secure communications documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1. NSTISSI 4005 ? Safeguarding and Control of Communications Security Material.
2. NSTISSI 4000 ? Cryptographic Equipment Maintenance and Training.
3. NSTISSI 3005 ? Safeguarding and Control of Data Encryption Standard (DES) Equipment and Associated Unclassified Communications Security Aids.
4. NSTISSI 4001 ? Controlled COMSEC Items (CCI).
5. NSTISSI 4004 ? Routine Destruction and Emergency Protection of COMSEC Material.
6. NSTISSI 7000 ? TEMPEST Countermeasures for Facilities
7. NSTISSAM TEMPEST/2-95 ? Red/Black Installation Guidance
8. FIPS Pub. 140-2 ? Security Requirements for Cryptographic Modules.
9. Special Publication 800-21 ? Guideline for Implementing Cryptography in the Federal Government.
10. FIPS Pub. 197 ? Advanced Encryption Standard (AES), specifies the AES algorithm.
11. FIPS Pub. 46-3 ? Data Encryption Standard (DES)
12. FIPS Pub. 81 ? DES Modes of Operation
13. FIPS Pub. 74 ? Guidelines for Implementing and Using DES
14. NASA/USAF Interagency Agreement for COMSEC, Attachment F-1, COMSEC Maintenance Support Plan, dated 6/83.
15. NSTS-22241 ? COMSEC Key Control Agreement.
16. COMSEC Maintenance Support Plan, Attachment F-1
17. NASA Policy and Requirement (NPR) 2810 (Current Revision)
18. NASA Communications Security (COMSEC) Classification Guide.
19. NASA Center Office of Records (COR) COMSEC Standard Operating Procedures (CSOP) Complete Set

Working knowledge:

1. ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

2. Maintenance and associated Installation of the ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

3.) MCCA Comsec facility and interfaces to MCCA.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4 MATERIAL/TRAVEL**

Labor:

6 FTE - ISS

Travel: Travel will be required to support COMSEC requirements. COMSEC travel should not to exceed \$4K. This travel budget is planned to accommodate:

- 2 domestic trips for BCC/HOSC activation and Hurricane support. Each trip is a 1 week duration for 2 people.

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW 2.6, Security, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

FDOC-TO10-14 FDOC Total Cost Estimate: (b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

(b) (4)

|   |  |   |                      |
|---|--|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |  | <b>Task Order Number:</b><br>FDOC-TO11-14       | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |  | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No   | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of MPCV  |  |   |                      |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |   |                      |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV |   |                      |
| <b>Schedule</b>   |  |   |                      |
| <b>Start Date:</b><br>10/01/2013  |  | <b>Estimated Completion Date:</b><br>09/30/2014 |                      |
| <b>Approvals</b>  |  |   |                      |
| <b>Title</b>  | <b>Point of Contact</b>  | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy   | (281) 244-1134                                  | 06/18/2013           |
| Task Order TMR  | ALLCORN, JON   | (281) 244-8402                                  | 06/18/2013           |
| Task Order Division   | Lindner, Daniel  | (281) 483-3885                                  | 06/18/2013           |
| FDOC Representative   | Beuchaw, Karen   | (281) 283-4363                                  | 07/22/2013           |
| Task Order Monitor  | Melendrez, Amy   | (281) 244-1134                                  | 08/07/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO  | (281) 244-0513                                  | 08/07/2013           |
| COTR  | Lowery, James  | (281) 483-1064                                  | 08/08/2013           |
| NASA Contracts Officer  | Maclean, Cynthia   | (281) 244-5903                                  | 08/08/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |  |   | <b>Date</b> 8/8/13   |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |  |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO11-14 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$ | Fee \$    | Total \$ |
| 2014   | Original |                |          |        |           |                |                                       |        |           |          |
| Totals:  |          |                |          |        |           |                |                                       |        |           |          |

(b) (4)

|  |   |             |
|--|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO11-14 | <b>Mod:</b> |
|--|---|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects (e.g. MCC21, TS21, UA21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOPCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

### **2.2 NASA INPUT REQUIREMENTS**

- Access to all MOP-level requirements and design documentation

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

LOE support is 0.74 FTE October 2013 through September 2014. - MPCV funding

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

**4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO11-14 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2014**

**Grand Totals**

**HOURS:**

**LABOR:**

**ODC:**

**TRAVEL:**

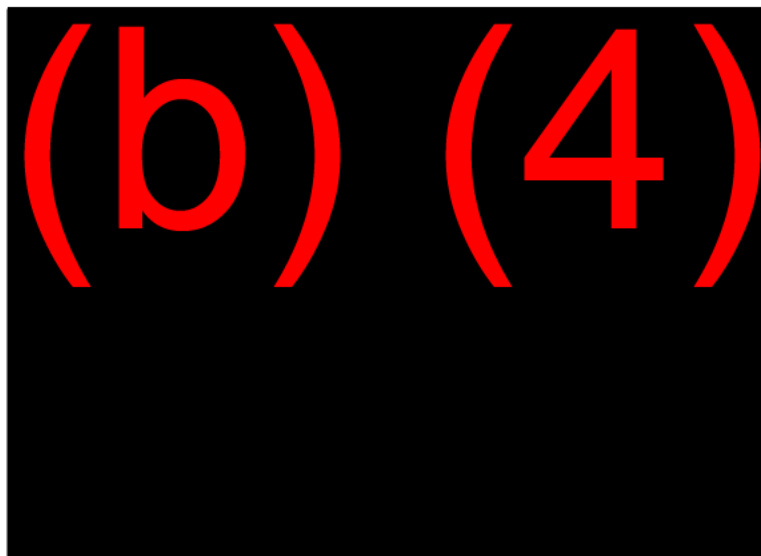
**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**



|   |  |   |                      |
|---|--|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |  | <b>Task Order Number:</b><br>FDOC-TO11-14       | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |  | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 14  | <b>Multiyear:</b> No   | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of MPCV  |  |   |                      |
| <b>Mission Directorates Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |   |                      |
| <b>Programs Supported:</b>  | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV |   |                      |
| <b>Schedule</b>   |  |   |                      |
| <b>Start Date:</b><br>10/01/2013  |  | <b>Estimated Completion Date:</b><br>09/30/2014 |                      |
| <b>Approvals</b>  |  |   |                      |
| <b>Title</b>  | <b>Point of Contact</b>  | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Melendrez, Amy   | (281) 244-1134                                  | 09/25/2013           |
| Task Order TMR  | ALLCORN, JON   | (281) 244-8402                                  | 09/25/2013           |
| Task Order Division   | Lindner, Daniel  | (281) 483-3885                                  | 09/27/2013           |
| FDOC Representative   | Beuchaw, Karen   | (281) 283-4363                                  | 10/02/2013           |
| Task Order Monitor  | Melendrez, Amy   | (281) 244-1134                                  | 10/18/2013           |
| NASA Resource Analyst   | VICENCIO, CARLITO  | (281) 244-0513                                  | 10/22/2013           |
| COTR  | Lowery, James  | (281) 483-1064                                  | 10/22/2013           |
| NASA Contracts Officer  | Maclean, Cynthia   | (281) 244-5903                                  | 10/23/2013           |
| <b>CO's Signature</b> <i>Cynthia Maclean</i>  |  |   | <b>Date</b> 10/23/13 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |  |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO11-14 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$ | Fee \$         | Total \$ |
| 2014   | Original |                | (b) (4)  |        |           |                |                                       |        |                |          |
| 2014   | 1        |                |          |        |           |                |                                       |        |                |          |
| Totals:  |          |                |          |        |           |                |                                       |        |                |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |   |                  |
|--|---|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO11-14 | <b>Mod:</b><br>1 |
|--|---|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects (e.g. MCC21, TS21, UA21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOPCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

### **2.2 NASA INPUT REQUIREMENTS**

- Access to all MOP-level requirements and design documentation

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.


LOE support is 0.31 FTE October 2013 through September 2014. - MPCV funding

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

**4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|  |                         |   |                        |
|--|-------------------------|---|------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO0-15        | <b>Mod:</b>            |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                        |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2.1                         |                        |
| <b>Title:</b> Program Requirements Document (PRD)  |                         |   |                        |
| <b>Mission Directorates Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                        |
| <b>Programs Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/GSDO |                         |   |                        |
| <b>Schedule</b>  |                         |   |                        |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                        |
| <b>Approvals</b>   |                         |   |                        |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 07/10/2014             |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/10/2014             |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/11/2014             |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 08/01/2014             |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 08/01/2014             |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/01/2014             |
| COTR   | Lowery, James           | (281) 483-1064                                  | 08/01/2014             |
| NASA Contracts Officer   | NEVELS, CRYSTAL         | (281) 792-7842                                  |                        |
| <b>CO's Signature</b>    |                         |   | <b>Date</b> 09-03-2014 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                        |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO0-15 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

**1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK****2.2 NASA INPUT REQUIREMENTS**

- Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV
- Electronic book maintenance for ISS Orbital Volume I,II and MPCV

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

Travel requirements

Number of trips (1 person/trip): 2

Trip destination: ISS (Domestic - 2)

Trip duration: 5 days

Trip purpose: attend multi-center requirement issues resolution meetings

Materials support required, if any: None

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-T00-15 FDOC Total Cost Estimate: (b) (4)

**FY:** 2015

Grand Totals

**HOURS:**

(b) (4)

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T00-15 | <b>Mod:</b> |
|---|--|-------------|


**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO0-15        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.2.1                         |                      |
| <b>Title:</b> Program Requirements Document (PRD)  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/GSDO   |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 10/29/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 10/30/2014           |
| Task Order Division  | Leblanc, Troy           | (281) 244-0279                                  | 04/09/2015           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 04/10/2015           |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 04/16/2015           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 04/16/2015           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 04/17/2015           |
| NASA Contracts Officer   | NEVELS, CRYSTAL         | (281) 792-7842                                  | 04/21/2015           |
| <b>CO's Signature</b> CHRYSTAL NEVELS  <small>Digitally signed by CHRYSTAL NEVELS<br/>DN: c, US, o U.S. Government, ou NASA,<br/>ou FIV, 0.9.2342.15200300.100.1.1 cnevels,<br/>cn CHRYSTAL NEVELS<br/>Date: 2015.04.21 13:40:11 -0500</small>  |                         | <b>Date</b> 04/21/2015                          |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text           <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO0-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original |                |          |           |              | (b) (4)        |                                      |        |                |          |
| 2015   | 1        |                |          |           |              | (b) (4)        |                                      |        |                |          |
|  |          |                |          |           |              |                |                                      |        |                |          |
| Totals:  |          |                |          |           |              |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO0-15 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

### **1.2OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

- ISS Support includes Integration of CCtCap per SSCN 014337

### **2.2NASA INPUT REQUIREMENTS**

- Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV
- Electronic book maintenance for ISS Orbital Volume I,II and MPCV

### **2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4MATERIAL/TRAVEL**

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

Travel requirements

Number of trips (1 person/trip): 2

Trip destination: ISS (Domestic - 2)

Trip duration: 5 days

Trip purpose: attend multi-center requirement issues resolution meetings

Materials support required, if any: None

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations<br/>Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T00-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T00-15 FDOC Total Cost Estimate: (b) (4)

|                   |             |                            |
|-------------------|-------------|----------------------------|
| <b>FY:</b>        | <b>2015</b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)     | (b) (4)                    |
| <b>LABOR:</b>     |             |                            |
| <b>ODC:</b>       |             |                            |
| <b>TRAVEL:</b>    |             |                            |
| <b>MATERIALS:</b> |             |                            |
| <b>SUPPORT:</b>   |             |                            |
| <b>G&amp;A:</b>   |             |                            |
| <b>FEE:</b>       |             |                            |
| <b>AMOUNT:</b>    |             |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T00-15 | <b>Mod:</b><br>1 |
|---|--|------------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|  |                         |   |                        |
|--|-------------------------|---|------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO1-15        | <b>Mod:</b>            |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                        |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1.2                         |                        |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)  |                         |   |                        |
| <b>Mission Directorates Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                        |
| <b>Programs Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |                         |   |                        |
| <b>Schedule</b>  |                         |   |                        |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                        |
| <b>Approvals</b>   |                         |   |                        |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 07/10/2014             |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/10/2014             |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/11/2014             |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 08/01/2014             |
| Task Order Monitor   | Hervey, Jewel           | (281) 483-0359                                  | 08/01/2014             |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/01/2014             |
| COTR   | Lowery, James           | (281) 483-1064                                  | 08/01/2014             |
| NASA Contracts Office  | NEVELS, CRYSTAL         | (281) 792-7842                                  | 09/03/2014             |
| <b>CO's Signature</b>    |                         |   | <b>Date</b> 09/03/2014 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                        |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO1-15 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs
- Gather and consolidate communications requirements into draft versions of the MSRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements
- Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs
- Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA

### **2.2 NASA INPUT REQUIREMENTS**

International Space Station Operational Communication Overview (IOCO)

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

Travel requirements

Number of trips (1 person/trip): 6

Trip destination: ISS (Domestic - 2, International - 0), MPCV (Domestic - 4)

Trip duration: domestic trips = 5 days

Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings.

Materials support required, if any: None

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-TO1-15 FDOC Total Cost Estimate: (b) (4)

**FY:**

**2015**

**Grand Totals**

**HOURS:**

(b) (4)

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO1-15 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO1-15        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1.2                         |                      |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO  |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Gowda, Shashi           | (281) 483-7057                                  | 04/06/2015           |
| Task Order TMR   | Carreon, Patricia       | (281) 483-7052                                  | 04/08/2015           |
| Task Order Division  | Leblanc, Troy           | (281) 244-0279                                  | 04/09/2015           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 04/10/2015           |
| Task Order Monitor   | Gowda, Shashi           | (281) 483-7057                                  | 04/16/2015           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 04/16/2015           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 04/17/2015           |
| NASA Contracts Officer   | NEVELS, CHRYSTAL        | (281) 792-7842                                  | 04/21/2015           |
| <b>CO's Signature</b> CHRYSTAL NEVELS  |                         | <b>Date</b>                                     |                      |
| <small>Digitally signed by CHRYSTAL NEVELS<br/>         DN: c=US, o=U.S. Government, ou=NASA, ou=PIV,<br/>         0.9.2342.19200300.100.1.1=cnevels, cn=CHRYSTAL<br/>         NEVELS<br/>         Date: 2015.04.27 08:56:41 -05'00'</small>   |                         |   |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO1-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |        |                |          |
| 2015   | 1        |                |          |           |              |                |                                      |        |                |          |
|  |          |                |          |           |              |                |                                      |        |                |          |
| Totals:  |          |                |          |           |              |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO1-15 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

### **1.2OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs
- Gather and consolidate communications requirements into draft versions of the MSRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements
- Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs
- Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA
- ISS Support includes Integration of CCTCap per SSCN 014337

### **2.2NASA INPUT REQUIREMENTS**

International Space Station Operational Communication Overview (IOCO)

### **2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4MATERIAL/TRAVEL**

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

Travel requirements

Number of trips (1 person/trip): 6

Trip destination: ISS (Domestic - 2, International - 0), MPCV (Domestic - 4)

Trip duration: domestic trips = 5 days

Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings.

Materials support required, if any: None

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO1-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-TO1-15 FDOC Total Cost Estimate:

(b) (4)

|                   |             |                            |
|-------------------|-------------|----------------------------|
| <b>FY:</b>        | <b>2015</b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)     | (b) (4)                    |
| <b>LABOR:</b>     |             |                            |
| <b>ODC:</b>       |             |                            |
| <b>TRAVEL:</b>    |             |                            |
| <b>MATERIALS:</b> |             |                            |
| <b>SUPPORT:</b>   |             |                            |
| <b>G&amp;A:</b>   |             |                            |
| <b>FEE:</b>       |             |                            |
| <b>AMOUNT:</b>    |             |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO1-15 | <b>Mod:</b><br>1 |
|---|--|------------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|   |                         |   |                       |
|---|-------------------------|---|-----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO2-15        | <b>Mod:</b>           |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                       |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.3                           |                       |
| <b>Title:</b> Human Space Flight Network Operations Integration   |                         |   |                       |
| <b>Mission Directorates Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                       |
| <b>Programs Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO |                         |   |                       |
| <b>Schedule</b>   |                         |   |                       |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                       |
| <b>Approvals</b>  |                         |   |                       |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b>  |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359                                  | 07/10/2014            |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402                                  | 07/10/2014            |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885                                  | 07/11/2014            |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 08/01/2014            |
| Task Order Monitor  | Hervey, Jewel           | (281) 483-0359                                  | 08/01/2014            |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/01/2014            |
| COTR  | Lowery, James           | (281) 483-1064                                  | 08/01/2014            |
| NASA Contracts Officer  | NEVELS, CRYSTAL         | (281) 792-7842                                  | 09/03/2014            |
| <b>CO's Signature</b>   |                         |   | <b>Date</b> 9/03/2014 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                       |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO2-15 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

**1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

**2.2 NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Number of Personnel (FTE): 3 (1.08 ISS, 1.92 MPCV)

Travel requirements

Number of trips (1 person/trip): 12

Trip destination: ISS (Domestic - 3), MPCV (Domestic - 9)

Trip duration: 5 days

Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

Materials support required, if any: None

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

FDOC-TO2-15 FDOC Total Cost Estimate: (b) (4)

**FY:**

**2015**

**Grand Totals**

**HOURS:**

(b) (4)

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T02-15 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO2-15        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.3                           |                      |
| <b>Title:</b> Human Space Flight Network Operations Integration   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV, SLS, GSDO  |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Gowda, Shashi           | (281) 483-7057                                  | 04/06/2015           |
| Task Order TMR  | Carreon, Patricia       | (281) 483-7052                                  | 04/08/2015           |
| Task Order Division   | Leblanc, Troy           | (281) 244-0279                                  | 04/09/2015           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 04/10/2015           |
| Task Order Monitor  | Gowda, Shashi           | (281) 483-7057                                  | 04/16/2015           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 04/16/2015           |
| COTR  | Lowery, James           | (281) 483-1064                                  | 04/16/2015           |
| NASA Contracts Officer  | NEVELS, CHRYSTAL        | (281) 792-7842                                  | 04/21/2015           |
| <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div> <b>CO's Signature</b> CHRYSTAL NEVELS<br/> <small>D: globally signed by CHRYSTAL NEVELS<br/>           DN: c=US, o=U.S. Government, ou=NASA,<br/>           ou=PMV, S.3.3.3.2.15000000.100.1.1=chrystal,<br/>           cn=CHRYSTAL NEVELS<br/>           Date: 2015.04.21 13:51:37 -0500</small> </div> <div> <b>Date</b> 04/21/2015         </div> </div> |                         |   |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul>  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO2-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |        |                |          |
| 2015   | 1        |                |          |           |              |                |                                      |        |                |          |
|  |          |                |          |           |              |                |                                      |        |                |          |
| Totals:  |          |                |          |           |              |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO2-15 | <b>Mod:</b><br>1 |
|--|--|------------------|

## 1.0 **GENERAL SCOPE OF WORK**

### 1.1 **PURPOSE**

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

### 1.2 **OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

## 2.0 **TASK DESCRIPTION**

### 2.1 **DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements
- ISS Support includes Integration of CCtCap per SSCN 014337

### 2.2 **NASA INPUT REQUIREMENTS**

Network Operations Directive (NOD)

### 2.3 **CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### 2.4 **MATERIAL/TRAVEL**

Number of Personnel (FTE): 3 (1.08 ISS, 1.92 MPCV)

Travel requirements

Number of trips (1 person/trip): 12

Trip destination: ISS (Domestic - 3), MPCV (Domestic - 9)

Trip duration: 5 days

Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

Materials support required, if any: None

## 3.0 **SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System

(QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations</b><br><b>Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T02-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-T02-15 FDOC Total Cost Estimate: (b) (4)

|                   |             |                            |
|-------------------|-------------|----------------------------|
| <b>FY:</b>        | <b>2015</b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)     | (b) (4)                    |
| <b>LABOR:</b>     |             |                            |
| <b>ODC:</b>       |             |                            |
| <b>TRAVEL:</b>    |             |                            |
| <b>MATERIALS:</b> |             |                            |
| <b>SUPPORT:</b>   |             |                            |
| <b>G&amp;A:</b>   |             |                            |
| <b>FEE:</b>       |             |                            |
| <b>AMOUNT:</b>    |             |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO2-15 | <b>Mod:</b><br>1 |
|---|--|------------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|   |                         |   |                        |
|---|-------------------------|---|------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO3-15        | <b>Mod:</b>            |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                        |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                        |
| <b>Title:</b> System Engineering and Integration Support (Special Projects)   |                         |   |                        |
| <b>Mission Directorates Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                        |
| <b>Programs Supported:</b><br><input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc: |                         |   |                        |
| <b>Schedule</b>   |                         |   |                        |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                        |
| <b>Approvals</b>  |                         |   |                        |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b>   |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709                                  | 07/11/2014             |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402                                  | 07/11/2014             |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885                                  | 07/18/2014             |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 08/01/2014             |
| Task Order Monitor  | Wolfer, Eric            | (281) 483-6709                                  | 08/01/2014             |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/01/2014             |
| COTR  | Lowery, James           | (281) 483-1064                                  | 08/01/2014             |
| NASA Contracts Officer  | NEVELS, CRYSTAL         | (281) 792-7842                                  | 09/03/2014             |
| <b>CO's Signature</b>   |                         |   | <b>Date</b> 09/03/2014 |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                        |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO3-15 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |           |          |
| Totals:  |          |                |          |        |           |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

**1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.
- 12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, UAWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required.
- 16.) Support UAS activities by supplying information as requested on UAS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

**2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 2 FTE â€” Special Projects (ISS)

Travel requirements:

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3)

Trip duration: 5 days

Trip purpose:

Materials support required, if any: None.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the

work required under this task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO3-15 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2015**

**Grand Totals**

**HOURS:**

(b) (4)

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO3-15 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO3-15        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support (Special Projects)  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc:  |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 11/21/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 11/24/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 11/24/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 12/09/2014           |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 12/11/2014           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 12/11/2014           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 12/16/2014           |
| NASA Contracts Officer   | NEVELS, CHRYSTAL        | (281) 792-7842                                  |                      |
| <b>CO's Signature</b> <b>CHRYSTAL NEVELS</b> <small>Digitally signed by CHRYSTAL NEVELS<br/>DN: c=US, o=US Government, ou=NASA, ou=PIV,<br/>0.9.2342.19200300.100.1.1=nevels, cn=CHRYSTAL NEVELS<br/>Date: 2014.12.17 10:24:26 -06'00'</small>   |                         | <b>Date</b> 12/16/2014                          |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO3-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                           | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2015   | 1        |                |          |        |           |                |                                      |        |                |          |
|  |          |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |
|  |          |                |          |        |           |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is 

(b) (4)

 and the Contracting Officer's signature approves a total value of 

(b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.
- 12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, UAWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required.
- 16.) Support UAS activities by supplying information as requested on UAS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

### **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

### **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 1.5 FTE " Special Projects (ISS)

Travel requirements:

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3)

Trip duration: 5 days

Trip purpose:

Materials support required, if any: \$100K.

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO3-15 FDOC Total Cost Estimate:

(b) (4)

FY:

2015

HOURS:

(b) (4)

LABOR:

ODC:

TRAVEL:

MATERIALS:

SUPPORT:

G&A:

FEE:

AMOUNT:

Grand Totals

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO3-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

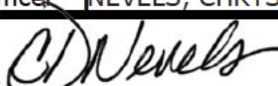
**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO4-15        | <b>Mod:</b><br>Basic |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.5                           |                      |
| <b>Title:</b> Architectural and Engineering Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc: |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 09/10/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 09/10/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 09/12/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 09/12/2014           |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 09/12/2014           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 09/15/2014           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 09/15/2014           |
| NASA Contracts Officer   | NEVELS, CHRYSIAL        | (281) 792-7842                                  |                      |
| CO's Signature    |                         | Date 9/15/2014                                  |                      |
| <b>Contents:</b>   |                         |   |                      |
| Title - Signature Page sa.gov<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                      |

chrysal.d.nevels@na

 Digitally signed by  
 chrysal.d.nevels@nasa.gov  
 DN: cn=chrysal.d.nevels@nasa.gov  
 Date: 2014.09.15 14:51:52 -05'00'

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO4-15 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | ( b ) ( 4 )    |          |           |              |                |                                      |        |           |          |
|  |          |                |          |           |              |                |                                      |        |           |          |
| Totals:  |          |                |          |           |              |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                      |
|--|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-15 | <b>Mod:</b><br>Basic |
|--|--|----------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch(DD2).

This Task Order is to provide engineering support for the Space Data System standards development.

### **1.2OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
- 2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

### **2.2NASA INPUT REQUIREMENTS**

All DD requirements.

### **2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

### **2.4MATERIAL/TRAVEL**

Number of personnel (FTE):

0.64 FTE - SCAN-CCSDS Data Standards support (Track CCSDS support separately)

SCAN-CCSDS Travel support

Trip destination: (1) International and (1) domestic

Trip purpose: Support Bi-annual CCSDS Data Standards Working Group Meetings

Trip duration: 5 days

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO4-15 | <b>Mod:</b> |
|---|--|-------------|

FDOC-TO4-15 FDOC Total Cost Estimate:

(b) (4)  
( b )

|                   |             |                            |
|-------------------|-------------|----------------------------|
| <b>FY:</b>        | <b>2015</b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)     | (b) (4)                    |
| <b>LABOR:</b>     |             |                            |
| <b>ODC:</b>       | (b) (4)     | (b) (4)                    |
| <b>TRAVEL:</b>    |             |                            |
| <b>MATERIALS:</b> |             |                            |
| <b>SUPPORT:</b>   |             |                            |
| <b>G&amp;A:</b>   |             |                            |
| <b>FEE:</b>       |             |                            |
| <b>AMOUNT:</b>    |             |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO4-15 | <b>Mod:</b> |
|---|--|-------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b>  |                         | <b>Task Order Number:</b><br>FDOC-TO4-15        | <b>Mod:</b><br>1     |
| Facility Engineering and Support Services Task Order   |                         |   |                      |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.5                           |                      |
| <b>Title:</b> Architectural and Engineering Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input checked="" type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc:   |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 04/09/2015           |
| Task Order TMR   | Carreon, Patricia       | (281) 483-7052                                  | 04/09/2015           |
| Task Order Division  | Leblanc, Troy           | (281) 244-0279                                  | 04/15/2015           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 04/23/2015           |
| Task Order Monitor   | Wolfer, Eric            | (281) 483-6709                                  | 04/23/2015           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 04/23/2015           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 04/23/2015           |
| NASA Contracts Officer   | NEVELS, CRYSTAL         | (281) 792-7842                                  |                      |
| <b>CO's Signature</b>   |                         | <b>Date</b> 4/24/2015                           |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text           <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO4-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |        |                |          |
| 2015   | 1        |                |          |           |              |                |                                      |        |                |          |
|  |          |                |          |           |              |                |                                      |        |                |          |
| Totals:  |          |                |          |           |              |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations<br/>Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO4-15 | <b>Mod:</b><br>1 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch(DD2).

This Task Order is to provide engineering support for the Space Data System standards development.

### **1.2OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

### **2.2NASA INPUT REQUIREMENTS**

All CD requirements.

### **2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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### **2.4MATERIAL/TRAVEL**

Number of personnel (FTE):

0.31 FTE - SCAN-CCSDS Data Standards support (Track CCSDS support separately)

SCAN-CCSDS Travel support

Trip destination: (1) International and (1) domestic

Trip purpose: Support Bi-annual CCSDS Data Standards Working Group Meetings

Trip duration: 5 days

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order</b><br><b>Number:</b><br>FDOC-TO4-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-TO4-15 FDOC Total Cost Estimate: (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <u><b>2015</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO4-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified

**IN POP BASELINE:** NO

**PSLA:** None Specified

**INCREMENTALLY FUNDED:** NO

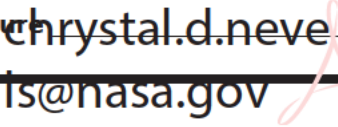
**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO5-15        | <b>Mod:</b><br>Basic |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support (MCCS)  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100   |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Cobb, Carey             | (281) 244-8564                                  | 07/08/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/09/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/11/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 08/04/2014           |
| Task Order Monitor   | Cobb, Carey             | (281) 244-8564                                  | 08/04/2014           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/04/2014           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 08/13/2014           |
| NASA Contracts Officer   | NEVELS, CRYSTAL         | (281) 792-7842                                  | 09/10/2014           |
| <b>CO's Signature:</b>  Digitally signed by<br>chrystal.d.nevels@nasa.gov<br>DN: cn=chrystal.d.nevels@nasa.gov<br>Date: 2014.09.10 10:29:33 -05'00'   |                         |   |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text           <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO5-15 |           | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|-----------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A<br>\$ | Fee \$    | Total \$ |
| 2015   | Original | ( b ) ( 4 )    |          |           |              |                |                                      |           |           |          |
|  |          |                |          |           |              |                |                                      |           |           |          |
| Totals:  |          |                |          |           |              |                |                                      |           |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                      |
|--|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>Basic |
|--|--|----------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
- 2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.
- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCA Work plan.
- 12.) Generate and maintain a list of potential MCCA architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCA architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCA activities by supplying information as requested on MCCA.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the

Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.

20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

22) Provide Full architectural understanding of all MCCS Systems past and present.

Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (DD15 Working Groups and associated splinters) and DD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and DD4. Interface point for final design and implementation integration of IRD and COD solutions with DD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCA (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with DD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This task will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCA. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCA common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCA common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

## **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 7 (6 ISS, 1 MPCV)

Travel requirements

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3, International - 0)

Trip duration: 5 days

Materials support required, if any: None

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b> |
|---|--|-------------|

( b ) ( 4 )

FDOC-TO5-15 FDOC Total Cost Estimate:

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <u><b>2015</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     | ( b )              | ( b )                      |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-15 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|  |                         |  |                      |
|--|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO5-15   | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4  |                      |
| <b>Title:</b> System Engineering and Integration Support (MCCS)  |                         |  |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |  |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other         Other Desc: MPCV/SLS/CST-100   |                         |  |                      |
| <b>Schedule</b>  |                         |  |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015  |                      |
| <b>Approvals</b>   |                         |  |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor   | Cobb, Carey             | (281) 244-8564   | 12/03/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402   | 12/03/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885   | 12/05/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461   | 12/19/2014           |
| Task Order Monitor   | Cobb, Carey             | (281) 244-8564   | 01/05/2015           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513   | 01/06/2015           |
| COTR   | Lowery, James           | (281) 483-1064   | 01/06/2015           |
| NASA Contracts Officer   | NEVELS, CHRYSTAL        | (281) 792-7842   | 01/06/2015           |
| <b>CO's Signature</b> <b>CHRYSTAL NEVELS</b>   |                         | Digitally signed by CHRYSTAL NEVELS<br>DN: c=US, o=U.S. Government, ou=NASA, ou=PIV,<br>0.9.2342.19200300.100.1.1=cnevels, cn=CHRYSTAL NEVELS<br>Date: 2015.01.06 11:35:00 -06'00' |                      |
| <b>Date</b> 01/06/2015   |                         |  |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2015   | 1        |                |          |        |           |                |                                      |        |                |          |
|  |          |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.
- 2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
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- 4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
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- 6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.
- 7.) Coordinate all change activities with the appropriate CD project manager.
- 8.) Represent the CD facility and customer interests and impacts to the various change boards.
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- 10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCA Work plan.
- 12.) Generate and maintain a list of potential MCCA architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
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- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCA activities by supplying information as requested on MCCA.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.
- 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.
- 22.) Provide Full architectural understanding of all MCCA Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF

communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

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[3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

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32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

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vehicles that will be supported in the MCCA. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCA common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCA common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

## **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 7.5 (5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3, International - 0)

Trip duration: 5 days

Materials support required, if any: \$160K for ISS purchased labor and \$40K for CST-100 purchased labor

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO5-15 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2015**

**HOURS:**

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

**Grand Totals**

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-15        | <b>Mod:</b><br>2     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support (MCCS)   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100 |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 01/27/2015           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402                                  | 01/27/2015           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885                                  | 01/27/2015           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 01/27/2015           |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 01/27/2015           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 01/27/2015           |
| COTR  | Lowery, James           | (281) 483-1064                                  | 01/29/2015           |
| NASA Contracts Officer  | NEVELS, CHRYSTAL        | (281) 792-7842                                  | 02/17/2015           |
| <b>CO's Signature</b>   |                         | <b>Date</b> 2/17/2015                           |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                      |

Digitally signed by CHRYSTAL NEVELS  
 DN: c=US, o=U.S. Government, ou=NASA, ou=PIV,  
 0.9.2342.19200300.100.1.1=cnevels, cn=CHRYSTAL NEVELS  
 Date: 2015.02.17 11:07:47 -06'00'

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO5-15 |        | Revision:<br>2 |          |
|--|----------|----------------|----------|--------|-----------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                      |        |                |          |
| 2015   | 1        |                |          |        |           |                |                                      |        |                |          |
| 2015   | 2        |                |          |        |           |                |                                      |        |                |          |
|  |          |                |          |        |           |                |                                      |        |                |          |
| Totals:  |          |                |          |        |           |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is 

(b) (4)

 and the Contracting Officer's signature approves a total value of 

(b) (4)

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.
- 2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by CD facility, CD Project Managers or CD Customer communities.
- 6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.
- 7.) Coordinate all change activities with the appropriate CD project manager.
- 8.) Represent the CD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCA Work plan.
- 12.) Generate and maintain a list of potential MCCA architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with CD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCA architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCA activities by supplying information as requested on MCCA.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.
- 19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.
- 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.
- 22.) Provide Full architectural understanding of all MCCA Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF

communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new

vehicles that will be supported in the MCCA. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCA common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCA common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

## **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 7.5 (5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3, International - 0)

Trip duration: 5 days

Materials support required, if any: \$120K for ISS purchased labor, \$40k for MPCV purchased labor, and \$40K for CST-100 purchased labor

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

FDOC-TO5-15 FDOC Total Cost Estimate:

(b) (4)

**FY:**

**2015**

**HOURS:**

(b) (4)

**LABOR:**

**ODC:**

**TRAVEL:**

**MATERIALS:**

**SUPPORT:**

**G&A:**

**FEE:**

**AMOUNT:**

**Grand Totals**

(b) (4)

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>2 |
|---|--|------------------|

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-15        | <b>Mod:</b><br>3     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support (MCCS)   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100 |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 06/11/2015           |
| Task Order TMR  | Carreon, Patricia       | (281) 483-7052                                  | 06/11/2015           |
| Task Order Division   | Leblanc, Troy           | (281) 244-0279                                  | 06/15/2015           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 06/25/2015           |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 06/25/2015           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 06/26/2015           |
| COTR  | Lowery, James           | (281) 483-1064                                  | 06/26/2015           |
| NASA Contracts Officer  | BOYES, TIMOTHY          | (281) 483-1838                                  | 07/08/2015           |
| <b>CO's Signature</b> _____ <b>Date</b> _____   |                         |   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMOA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary   |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO5-15 |           | Revision:<br>3 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|-----------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A<br>\$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |           |                |          |
| 2015   | 1        |                |          |           |              |                |                                      |           |                |          |
| 2015   | 2        |                |          |           |              |                |                                      |           |                |          |
| 2015   | 3        |                |          |           |              |                |                                      |           |                |          |
|  |          |                |          |           |              |                |                                      |           |                |          |
| Totals:  |          |                |          |           |              |                |                                      |           |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>3 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.
- 2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by CD facility, CD Project Managers or CD Customer communities.
- 6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.
- 7.) Coordinate all change activities with the appropriate CD project manager.
- 8.) Represent the CD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with CD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the

Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.

20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

22) Provide Full architectural understanding of all MCCS Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

## **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 7.0 (4.5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3, International - 0)

Trip duration: 5 days

Materials support required, if any: \$220K for ISS purchased labor, \$40k for MPCV purchased labor, and \$40K for CST-100 purchased labor

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations<br/>Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>3 |
|---|--|------------------|

FDOC-TO5-15 FDOC Total Cost Estimate: (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <u><b>2015</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>3 |
|---|--|------------------|

**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u> | <u>Amount</u> |
|------------|---------------|
| WBS Total: | (b) (4)       |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO5-15        | <b>Mod:</b><br>4     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4                           |                      |
| <b>Title:</b> System Engineering and Integration Support (MCCS)   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV/SLS/CST-100  |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 07/10/2015           |
| Task Order TMR  | Carreon, Patricia       | (281) 483-7052                                  | 07/10/2015           |
| Task Order Division   | Leblanc, Troy           | (281) 244-0279                                  | 07/14/2015           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 07/24/2015           |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564                                  | 07/24/2015           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 07/28/2015           |
| COTR  | Dake, Janna             | (281) 483-6538                                  | 07/29/2015           |
| NASA Contracts Officer  | BOYES, TIMOTHY          | (281) 483-1838                                  | 08/12/2015           |
| <b>CO's Signature</b> <div style="display: inline-block; vertical-align: middle;"> </div> <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <small>Digitally signed by TIMOTHY BOYES<br/>           DN: c. US, o. U.S. Government, ou. NASA,<br/>           ou. PIV, cn. TIMOTHY BOYES,<br/>           6.5.2542.152003200.100.1.1 Boyes<br/>           Date: 2015.08.12 10:46:40 -0500</small> </div> |                         | <b>Date</b> 8/12/15                             |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text               <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul>  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO5-15 |           | Revision:<br>4 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|-----------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A<br>\$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |           |                |          |
| 2015   | 1        |                |          |           |              |                |                                      |           |                |          |
| 2015   | 2        |                |          |           |              |                |                                      |           |                |          |
| 2015   | 3        |                |          |           |              |                |                                      |           |                |          |
| 2015   | 4        |                |          |           |              |                |                                      |           |                |          |
|  |          |                |          |           |              |                |                                      |           |                |          |
| Totals:  |          |                |          |           |              |                |                                      |           |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO5-15 | <b>Mod:</b><br>4 |
|--|--|------------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Provide Mission Control Center Systems system engineering and sustaining support services.

### **1.2OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.
- 2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.
- 5.) Assist in any studies and assessments as needed by CD facility, CD Project Managers or CD Customer communities.
- 6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.
- 7.) Coordinate all change activities with the appropriate CD project manager.
- 8.) Represent the CD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.
- 10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCA Work plan.
- 12.) Generate and maintain a list of potential MCCA architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with CD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCA architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCA activities by supplying information as requested on MCCA.
- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the

Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.

20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

22) Provide Full architectural understanding of all MCCS Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

## **2.2 NASA INPUT REQUIREMENTS**

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 6.0 (3.5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements

Number of trips (1 person/trip): 3

Trip destination: ISS (Domestic - 3, International - 0)

Trip duration: 5 days

Materials support required, if any: \$270K for ISS purchased labor, \$40k for MPCV purchased labor, and \$40K for CST-100 purchased labor

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T05-15 | <b>Mod:</b><br>4 |
|---|--|------------------|

FDOC-T05-15 FDOC Total Cost Estimate:

(b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2015</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T05-15 | <b>Mod:</b><br>4 |
|---|--|------------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO8-15        | <b>Mod:</b><br>Basic |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.7                           |                      |
| <b>Title:</b> Alternate Facility Manager   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc:  |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Bauer, Angela           | (281) 483-1398                                  | 07/08/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/09/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/11/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 08/01/2014           |
| Task Order Monitor   | Bauer, Angela           | (281) 483-1398                                  | 08/01/2014           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/01/2014           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 08/01/2014           |
| NASA Contracts Officer   | NEVELS, CHRYSTAL        | (281) 792-7842                                  | 09/10/2014           |
| <b>CO's Signature</b>   |                         | <b>Date</b> 9/10/2014                           |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text           <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul> |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO8-15 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |        |           |          |
|  |          |                |          |           |              |                |                                      |        |           |          |
| Totals:  |          |                |          |           |              |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO8-15 | <b>Mod:</b> |
|--|--|-------------|

## **1.0 GENERAL SCOPE OF WORK**

### **1.1PURPOSE**

Provide assistance to or act as the Facility Manager.

### **1.2OBJECTIVE**

Ensure that safety, operations and facility support issues are resolved in a timely manner.

## **2.0 TASK DESCRIPTION**

### **2.1DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between DD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBs)
- Respond to Hot and Cold Calls
- Respond to Building Issues
- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning
- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)
- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)
- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance,

operations, and engineering. This effort includes activities such as analysis and integration

- Support continuous improvement efforts to improve overall efficiency of facility operations.

This effort includes activities such as process improvements and design reviews

- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

## **2.2 NASA INPUT REQUIREMENTS**

None required.

## **2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

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## **2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 1 FTE (ISS)

Travel requirements:

Number of trips (1 person/trip): 1

Trip destination: ISS (Domestic - 1, International - 0)

Trip duration: 5 days

Trip purpose: support facility-related safety training and/or benchmarking activities.

Materials support required, if any: N/A

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T08-15 | <b>Mod:</b> |
|---|--|-------------|

FDOC-T08-15 FDOC Total Cost Estimate:

(b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2015</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T08-15 | <b>Mod:</b> |
|---|--|-------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u> |
|-------------------|---------------|
| <b>WBS Total:</b> | (b) (4)       |

|  |                         |   |                      |
|--|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                         | <b>Task Order Number:</b><br>FDOC-TO9-15        | <b>Mod:</b><br>Basic |
| <b>Contractor:</b> Lockheed Martin Corporation   |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15   | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1                           |                      |
| <b>Title:</b> Ground Segment Control Board Technical Support   |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops  |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc: |                         |   |                      |
| <b>Schedule</b>  |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014   |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>   |                         |   |                      |
| <b>Title</b>   | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor   | Gowda, Shashi           | (281) 483-7057                                  | 07/03/2014           |
| Task Order TMR   | ALLCORN, JON            | (281) 244-8402                                  | 07/03/2014           |
| Task Order Division  | Lindner, Daniel         | (281) 483-3885                                  | 07/07/2014           |
| FDOC Representative  | Beuchaw, Karen          | (281) 283-4461                                  | 08/01/2014           |
| Task Order Monitor   | Gowda, Shashi           | (281) 483-7057                                  | 08/01/2014           |
| NASA Resource Analyst  | VICENCIO, CARLITO       | (281) 244-0513                                  | 08/01/2014           |
| COTR   | Lowery, James           | (281) 483-1064                                  | 08/01/2014           |
| NASA Contracts Officer   | NEVELS, CRYSTAL         | (281) 792-7842                                  | 09/10/2014           |
| <b>CO's Signature</b>   |                         | <b>Date</b> 9/10/2014                           |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO9-15 |        | Revision: |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |        |           |          |
|  |          |                |          |           |              |                |                                      |        |           |          |
| Totals:  |          |                |          |           |              |                |                                      |        |           |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |             |
|--|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO9-15 | <b>Mod:</b> |
|--|--|-------------|

**1.0 GENERAL SCOPE OF WORK**

**1.1PURPOSE**

Provide technical support to the Ground Segment Control Board (GSCB)

**1.2OBJECTIVE**

Ensure all GSCB activities are supported

**2.0 TASK DESCRIPTION**

**2.1DESCRIPTION OF WORK**

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support
- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- Support for IP End-to-End test coordination
- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
- IP Network requirements and implementation coordination

**2.2NASA INPUT REQUIREMENTS**

All NASA Programmatic requirements.

**2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS**

|                                 |                         |  |
|---------------------------------|-------------------------|--|
| 1. As Identified to fulfill 2.1 | Per negotiated schedule |  |
|---------------------------------|-------------------------|--|

**2.4MATERIAL/TRAVEL**

Number of personnel (FTE): 1.5 FTE (ISS)

Travel requirements:

Number of trips (1 person/trip): 7

Trip destination: ISS (Domestic - 4, International - 3)

Trip duration: 5 days

Materials support required, if any: N/A

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-T09-15 | <b>Mod:</b> |
|---|--|-------------|

FDOC-T09-15 FDOC Total Cost Estimate: (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2015</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |             |
|---|--|-------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-T09-15 | <b>Mod:</b> |
|---|--|-------------|

**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|   |                         |   |                      |
|---|-------------------------|---|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO9-15        | <b>Mod:</b><br>1     |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C              |                      |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.1                           |                      |
| <b>Title:</b> Ground Segment Control Board Technical Support  |                         |   |                      |
| <b>Mission Directorates Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                         |   |                      |
| <b>Programs Supported:</b> <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle <input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Other<br>Other Desc:   |                         |   |                      |
| <b>Schedule</b>   |                         |   |                      |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015 |                      |
| <b>Approvals</b>  |                         |   |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>                                    | <b>Date Approved</b> |
| Task Order Monitor  | Gowda, Shashi           | (281) 483-7057                                  | 04/06/2015           |
| Task Order TMR  | Carreon, Patricia       | (281) 483-7052                                  | 04/08/2015           |
| Task Order Division   | Leblanc, Troy           | (281) 244-0279                                  | 04/09/2015           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461                                  | 04/10/2015           |
| Task Order Monitor  | Gowda, Shashi           | (281) 483-7057                                  | 04/16/2015           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513                                  | 04/16/2015           |
| COTR  | Lowery, James           | (281) 483-1064                                  | 04/16/2015           |
| NASA Contracts Officer  | NEVELS, CHRYSTAL        | (281) 792-7842                                  | 04/21/2015           |
| <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div> <b>CO's Signature</b> CHRYSTAL NEVELS<br/> <small>D: gtiably signed by CHRYSTAL NEVELS<br/>           DN: c=US, o=U.S. Government, ou=NASA,<br/>           ou=PIV, 0.9.23.2.19200300.100.1.1=crvels,<br/>           cn=CHRYSTAL NEVELS<br/>           Date: 2015.04.21 13:53:29 -05'00'</small> </div> <div> <b>Date</b> 04/21/2015         </div> </div> |                         |   |                      |
| <b>Contents:</b> <ul style="list-style-type: none"> <li>Title - Signature Page</li> <li>Estimated Resources Summary</li> <li>Task Order Text             <ul style="list-style-type: none"> <li>1.0 General Scope of Work</li> <li>2.0 Task Description</li> <li>3.0 SRMQA</li> <li>4.0 Security Requirements</li> </ul> </li> <li>Estimated NASA Resources Summary</li> </ul>  |                         |   |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |           |              |                | Task Order<br>Number:<br>FDOC-TO9-15 |        | Revision:<br>1 |          |
|--|----------|----------------|----------|-----------|--------------|----------------|--------------------------------------|--------|----------------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC<br>\$ | Travel<br>\$ | Material<br>\$ | Support<br>\$                        | G&A \$ | Fee \$         | Total \$ |
| 2015   | Original | (b) (4)        |          |           |              |                |                                      |        |                |          |
| 2015   | 1        |                |          |           |              |                |                                      |        |                |          |
|  |          |                |          |           |              |                |                                      |        |                |          |
| Totals:  |          |                |          |           |              |                |                                      |        |                |          |

**NOTE:** The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

|  |  |                  |
|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Task Order Text | <b>Task Order Number:</b><br>FDOC-TO9-15 | <b>Mod:</b><br>1 |
|--|--|------------------|

## 1.0 **GENERAL SCOPE OF WORK**

### 1.1PURPOSE

Provide technical support to the Ground Segment Control Board (GSCB)

### 1.2OBJECTIVE

Ensure all GSCB activities are supported

## 2.0 **TASK DESCRIPTION**

### 2.1DESCRIPTION OF WORK

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support
- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- Support for IP End-to-End test coordination
- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
- IP Network requirements and implementation coordination
- ISS Support includes Integration of CCTCap per SSCN 014337

### 2.2NASA INPUT REQUIREMENTS

All NASA Programmatic requirements.

### 2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

|                                 |                         |  |
|---------------------------------|-------------------------|--|
| 1. As Identified to fulfill 2.1 | Per negotiated schedule |  |
|---------------------------------|-------------------------|--|

### 2.4MATERIAL/TRAVEL

Number of personnel (FTE): 1.5 FTE (ISS)

Travel requirements:

Number of trips (1 person/trip): 7

Trip destination: ISS (Domestic - 4, International - 3)

Trip duration: 5 days

Materials support required, if any: N/A

## 3.0 **SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO9-15 | <b>Mod:</b><br>1 |
|---|--|------------------|

FDOC-TO9-15 FDOC Total Cost Estimate:

(b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <b><u>2015</u></b> | <b><u>Grand Totals</u></b> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Estimated NASA Resources Summary | <b>Task Order Number:</b><br>FDOC-TO9-15 | <b>Mod:</b><br>1 |
|---|--|------------------|


**NASA RESOURCES GENERAL  
INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

| <u>WBS</u>        | <u>Amount</u>  |
|-------------------|----------------|
| <b>WBS Total:</b> | <b>(b) (4)</b> |

|   |                         |  |                      |
|---|-------------------------|--|----------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |                         | <b>Task Order Number:</b><br>FDOC-TO11-15  | <b>Mod:</b>          |
| <b>Contractor:</b> Lockheed Martin Corporation  |                         | <b>Contract Number:</b> NNJ09HD46C   |                      |
| <b>GFY:</b> 15  | <b>Multiyear:</b> No    | <b>SOW Ref:</b> 3.3.4  |                      |
| <b>Title:</b> Systems Engineering Support for Mission Operation Project in Support of MPCV  |                         |  |                      |
| <b>Mission Directorates Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Exploration <input type="checkbox"/> External <input type="checkbox"/> Science <input checked="" type="checkbox"/> Space Ops   |                      |
| <b>Programs Supported:</b>  |                         | <input type="checkbox"/> Aeronautics <input type="checkbox"/> Constellation <input type="checkbox"/> Science <input type="checkbox"/> Shuttle<br><input type="checkbox"/> SpaceComm <input type="checkbox"/> Station <input checked="" type="checkbox"/> Other<br>Other Desc: MPCV |                      |
| <b>Schedule</b>   |                         |  |                      |
| <b>Start Date:</b><br>10/01/2014  |                         | <b>Estimated Completion Date:</b><br>09/30/2015  |                      |
| <b>Approvals</b>  |                         |  |                      |
| <b>Title</b>  | <b>Point of Contact</b> | <b>Phone</b>   | <b>Date Approved</b> |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564   | 07/10/2014           |
| Task Order TMR  | ALLCORN, JON            | (281) 244-8402   | 07/10/2014           |
| Task Order Division   | Lindner, Daniel         | (281) 483-3885   | 07/11/2014           |
| FDOC Representative   | Beuchaw, Karen          | (281) 283-4461   | 08/01/2014           |
| Task Order Monitor  | Cobb, Carey             | (281) 244-8564   | 08/01/2014           |
| NASA Resource Analyst   | VICENCIO, CARLITO       | (281) 244-0513   | 08/01/2014           |
| COTR  | Lowery, James           | (281) 483-1064   | 08/01/2014           |
| NASA Contracts Officer  | NEVELS, CHRYSTAL        | (281) 792-7842   | 08/13/2014           |
| <b>CO's Signature</b>    |                         | <b>Date</b> 08-13-14   |                      |
| <b>Contents:</b><br>Title - Signature Page<br>Estimated Resources Summary<br>Task Order Text<br>1.0 General Scope of Work<br>2.0 Task Description<br>3.0 SRMQA<br>4.0 Security Requirements<br>Estimated NASA Resources Summary |                         |  |                      |

| Facilities Development and Operations Contract<br>FDOC Cost Estimate Summary |          |                |          |        |           |                | Task Order<br>Number:<br>FDOC-TO11-15 |        | Revision: |          |
|--|----------|----------------|----------|--------|-----------|----------------|---------------------------------------|--------|-----------|----------|
| Fiscal<br>Year   | Mod      | Labor<br>Hours | Labor \$ | ODC \$ | Travel \$ | Material<br>\$ | Support \$                            | G&A \$ | Fee \$    | Total \$ |
| 2015   | Original | (b) (4)        |          |        |           |                |                                       |        |           |          |
| Totals:  |          |                |          |        |           |                |                                       |        |           |          |

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

**1.0 GENERAL SCOPE OF WORK****1.1 PURPOSE**

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

**1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects (e.g. MCC21, TS21, UA21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

**2.0 TASK DESCRIPTION****2.1 DESCRIPTION OF WORK**

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOPCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

**2.2 NASA INPUT REQUIREMENTS**

- Access to all MOP-level requirements and design documentation

**2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS****2.4 MATERIAL/TRAVEL**

Number of personnel (FTE): 0.25 FTE (MPCV)

Travel requirements: None.

Materials support required, if any: None.

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

**4.0 SECURITY REQUIREMENTS**

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

|   |   |             |
|---|---|-------------|
| <b>Facilities Development and Operations Contract</b><br>FDOC Cost Estimate | <b>Task Order Number:</b><br>FDOC-TO11-15 | <b>Mod:</b> |
|---|---|-------------|

FDOC-TO11-15 FDOC Total Cost Estimate: (b) (4)

|                   |                    |                            |
|-------------------|--------------------|----------------------------|
| <b>FY:</b>        | <u><b>2015</b></u> | <u><b>Grand Totals</b></u> |
| <b>HOURS:</b>     | (b) (4)            | (b) (4)                    |
| <b>LABOR:</b>     |                    |                            |
| <b>ODC:</b>       |                    |                            |
| <b>TRAVEL:</b>    |                    |                            |
| <b>MATERIALS:</b> |                    |                            |
| <b>SUPPORT:</b>   |                    |                            |
| <b>G&amp;A:</b>   |                    |                            |
| <b>FEE:</b>       |                    |                            |
| <b>AMOUNT:</b>    |                    |                            |

**Facilities Development and Operations Contract**  
Estimated NASA Resources Summary

**Task Order Number:**  
FDOC-TO11-15

**Mod:**

**NASA RESOURCES GENERAL INFORMATON**

**FACTORY:** None Specified  
**IN POP BASELINE:** NO

**PSLA:** None Specified  
**INCREMENTALLY FUNDED:** NO

**WBS INFORMATION:**

**WBS**

**Amount**

**WBS Total:**

**(b) (4)**

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>4</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO0-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
| 1   |  | Cost<br>Labor: \$ (b) (4)<br>Travel: \$ (b) (4)<br>Material: \$ (b) (4)<br>Indirect Cost: (b) (4)                              |  | 1   |  | LOT  |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
|   |  |  |  |   |  |  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  |   |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |  |  | Timothy Boyes   |  | 09/09/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |   |  |                         |
|--|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |   | <b>Task Order Number:</b><br>FDOC-TO0-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation   |   | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.2 Program Requirements Document (PRD) |  |                         |
| <b>Title:</b> Program Requirements Document (PRD)  |   |  |                         |
| <b>Programs Supported:</b><br><br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Commercial Crew <input checked="" type="checkbox"/> MPCV/SLS<br><br><input type="checkbox"/> CST-100 <input type="checkbox"/> Other /Other Description: |   |  |                         |
|  |   |  |                         |
| <b>Schedule</b>  |   |  |                         |
| <b>Start Date:</b><br>10/1/2015  |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|  |   |  |                         |

#### **SOW Reference Text**

##### **3.3.2. Program Requirements Document (PRD)**

The Contractor shall provide book management support of the program requirements documents (PRD) into the Automated Support Requirements System (ASRS). The Contractor shall provide support to include identification, technical analysis, coordination, and documentation.

##### **3.3.2.1. PRD Documentation Support**

The Contractor shall provide for PRD documentation generation, maintenance, and publication.

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

**Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.**

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the Program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to FOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO0-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

## **2.1 DESCRIPTION OF WORK**

ISS Support includes Integration of CCtCap per SSCN 014337

## **2.2 NASA INPUT REQUIREMENTS**

- Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV
- Electronic book maintenance for ISS Orbital Volume I,II and MPCV

## **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

## **2.4 LABOR/MATERIAL/TRAVEL**

### **Labor Requirements**

Number of personnel (FTE): 0.5 FTE (0.375 ISS, 0.125 MPCV)

### **Material Requirements**

Material: None

### **Travel Requirements**

Number of trips (1 person/trip): 1 (ISS)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: attend multi-center requirement issues resolution meetings

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO0-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

## 5.0 AUTHORITY

### F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |   |  |   |  |  |  |
|---|--|---|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |   |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C  |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO0-16 Rev 1  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME   |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |   |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |   |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS  |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |   |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE  |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |   |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3  |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corp IS & GS Engineering Services<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO.  |  |   |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |   |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES   |  | 21. QUANTITY  |  | 22. UNIT   |  |
|   |  |   |  |   |  | 23. UNIT PRICE   |  |
|   |  |   |  |   |  | 24. AMOUNT   |  |
| 1   |  | Cost: \$(b) (4)   |  |   |  |  |  |
| 2   |  | Fee: \$(b) (4)  |  |   |  |  |  |
|   |  | The task order revision has \$ adjustment.<br>The total price of this task order is \$(b) (4) |  |   |  |  |  |
|   |  | *Period of Performance: 10/1/2015 - 9/30/2016*  |  |   |  |  |  |
|   |  | (Use Reverse and/or Attach Additional Sheets as Necessary)                                    |  |   |  |  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |   |  |   |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |   |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |   |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |   |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |   |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES <small>Digitally signed by Timothy Boyes<br/>DN: cn=TIMOTHY BOYES, o=NASA, ou=NASA, email=timothy.boyes@nasa.gov</small>  |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED  |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |   |  | Timothy A. Boyes  |  | 12/02/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|   |   |  |                  |
|---|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO0-16       | <b>Rev:</b><br>1 |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C             |                  |
| <b>GFY:</b> FY16  | <b>SOW Reference:</b> 3.3.2 Program Requirements Document (PRD) |  |                  |
| <b>Title:</b> Program Requirements Document (PRD)   |   |  |                  |
| <b>Programs Supported:</b><br><div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"><input type="checkbox"/> SpaceComm</div> <div style="text-align: center;"><input checked="" type="checkbox"/> Station</div> <div style="text-align: center;"><input checked="" type="checkbox"/> Commercial Crew</div> <div style="text-align: center;"><input checked="" type="checkbox"/> MPCV/SLS</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;"><input type="checkbox"/> CST-100</div> <div style="text-align: center;"><input type="checkbox"/> Other /Other Description:</div> </div> |   |  |                  |
|   |   |  |                  |
| <b>Schedule</b>   |   |  |                  |
| <b>Start Date:</b><br>10/1/2015   |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                  |
|   |   |  |                  |

#### **SOW Reference Text**

##### **3.3.2. Program Requirements Document (PRD)**

The Contractor shall provide book management support of the program requirements documents (PRD) into the Automated Support Requirements System (ASRS). The Contractor shall provide support to include identification, technical analysis, coordination, and documentation.

##### **3.3.2.1. PRD Documentation Support**

The Contractor shall provide for PRD documentation generation, maintenance, and publication.

## **1.0 GENERAL SCOPE OF WORK**

### **1.1 PURPOSE**

**Technical Description:** Provide book management support of the International Space Station, **Orion, and Commercial Crew** Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

### **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the Program's formal requirement document.

Functions are Station, **MPCV/Orion**, SLS, GSDO, **and CCP** program tasks delegated to FOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO0-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

## 2.1 DESCRIPTION OF WORK

ISS Support includes Integration of CCtCap per SSCN 014337

## 2.2 NASA INPUT REQUIREMENTS

- Program Requirements Document (PRD) Change Customer Support Requirement Requests (CSRR) supporting ISS Orbital Volume I,II, Orion and Commercial Crew.
- Electronic book maintenance for ISS Orbital Volume I,II and MPCV Orion.

## 2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

## 2.4 LABOR/MATERIAL/TRAVEL

### Labor Requirements

Number of personnel (FTE): 0.5 FTE (0.3 18 ISS, 0.1 30 ORION, 0.026 CCP-SpaceX, 0.026 CCP-Boeing)

### Material Requirements

Material: None

### Travel Requirements

Number of trips (1 person/trip): 1 (ISS)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: attend multi-center requirement issues resolution meetings

## 3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

## 4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO0-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

## **5.0 AUTHORITY**

### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|  |   |  |  |   |   |   |            |
|--|---|--|--|---|---|---|------------|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>  |   |  |  | 1. REQUISITION NUMBER   |   | PAGE 1 OF<br><b>5</b>                     |            |
| 2. CONTRACT NO.<br><br>NNJ09HD46C  |   | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |   | 5. SOLICITATION NUMBER<br><br>FDOC-TO1-16 |            |
| 7. FOR SOLICITATION INFORMATION CALL:  |   | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |   | 8. OFFER DUE DATE/ LOCAL TIME             |            |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov   |   |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |   |   |            |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE   |   | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |   | 13b. RATING                               |            |
| 15. DELIVER TO   |   | CODE   |  | 16. ADMINISTERED BY   |   | CODE                                      |            |
| 17a. CONTRACTOR/ OFFEROR<br>Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461  |   | CODE 3VRH3 FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY  |   |   |            |
| 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER <input type="checkbox"/>   |   | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM |  |   |   |   |            |
| 19. ITEM NO.   | 20. SCHEDULE OF SUPPLIES/SERVICES   |  |  | 21. QUANTITY  | 22. UNIT  | 23. UNIT PRICE                            | 24. AMOUNT |
| 1  | Cost<br>Labor: \$ (b) (4)<br>Travel: \$ (b) (4)<br>Material: \$ (b) (4)<br>Indirect Cost: \$ (b) (4)                        |  |  | 1   | LOT   | (b) (4)                                   |            |
| 2  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><br>(Use Reverse and/or Attach Additional Sheets as Necessary) |  |  | 1   | LOT   |   |            |
| 25. ACCOUNTING AND APPROPRIATION DATA  |   |  |  |   | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)   |   |            |
| 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |   |  |  |   | 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED         |   |            |
| 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |   |  |  |   | 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS: |   |            |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR   |   |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |   |   |            |
| 30b. NAME AND TITLE OF SIGNER (Type or print)  |   | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |   | 31c. DATE SIGNED                          |            |
|  |   |  |  | Timothy Boyes   |   | 09/09/2015                                |            |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |                                      |  |                         |
|--|--------------------------------------|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                                      | <b>Task Order Number:</b><br>FDOC-TO1-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation   |                                      | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.1.2 NACAIT |  |                         |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)  |                                      |  |                         |
| <b>Programs Supported:</b><br><br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Commercial Crew <input checked="" type="checkbox"/> MPCV/SLS<br><br><input type="checkbox"/> CST-100 <input type="checkbox"/> Other /Other Description: |                                      |  |                         |
|  |                                      |  |                         |
| <b>Schedule</b>  |                                      |  |                         |
| <b>Start Date:</b><br>10/1/2015  |                                      | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|  |                                      |  |                         |

#### **SOW Reference Text**

##### **3.3.1.2. Network and Communications Analysis and Integration Team (NACAIT)**

The Contractor shall provide support to the NACAIT by coordinating and documenting network communications requirements. Additionally, the Contractor shall collect program requirements changes, work with various program communities to validate the requirements, resolve any discrepancies, and document the final requirements in the program's formal requirement document.

Service level of support will be defined annually by NASA.

- NPRD Documentation Support - The Contractor shall provide for network program requirement documentation (NPRD) generation, maintenance, and publication.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.**

##### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to FOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO1-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs
- Gather and consolidate communications requirements into draft versions of the MSRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements
- Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for NISN for communications schedules
- Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs
- Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA
- ISS Support includes Integration of CCTCap per SSCN 014337

### **2.2 NASA INPUT REQUIREMENTS**

**International Space Station Operational Communication Overview (IOCO)**

### **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### **2.4 LABOR/MATERIAL/TRAVEL**

#### **Labor Requirements**

Number of personnel (FTE): 1 FTE (0.75 ISS, 0.25 MPCV)

#### **Material Requirements**

Material: None

#### **Travel Requirements**

Number of trips (1 person/trip): 4 Trips (1 domestic ISS, 3 domestic MPCV)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO1-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

### **5.0 AUTHORITY**

#### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |   |  |   |  |  |  |
|---|--|---|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |   |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C  |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO1-16 Rev 1                        |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME   |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |   |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |   |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS  |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)<br><br><input type="checkbox"/>   |  | 13b. RATING  |  |
|   |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP  |  |  |  |
| 15. DELIVER TO  |  | CODE  |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |   |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3  |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corp IS & GS Engineering Services<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO.  |  |   |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |   |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES   |  | 21. QUANTITY  |  | 22. UNIT   |  |
| 23. UNIT PRICE  |  | 24. AMOUNT  |  |   |  |  |  |
| 1   |  | Cost: (b) (4)   |  |   |  |  |  |
| 2   |  | Fee: (b) (4)  |  |   |  |  |  |
|   |  | The task order revision has (b) (4) adjustment.<br>The total price of this task order is (b) (4). |  |   |  |  |  |
|   |  | *Period of Performance: 10/1/2015 - 9/30/2016*  |  |   |  |  |  |
|   |  | (Use Reverse and/or Attach Additional Sheets as Necessary)  |  |   |  |  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |   |  |   |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)                            |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |   |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |   |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |   |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |   |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES <small>Digitally signed by Timothy Boyes<br/>DN: cn=TIMOTHY BOYES, o=NASA, ou=NASA, email=timothy.boyes@nasa.gov</small>  |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED  |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |   |  | Timothy A. Boyes  |  | 12/02/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |                                      |  |                  |
|--|--------------------------------------|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |                                      | <b>Task Order Number:</b><br>FDOC-TO1-16       | <b>Rev:</b><br>1 |
| <b>Contractor:</b> Lockheed Martin Corporation   |                                      | <b>Contract Number:</b> NNJ09HD46C             |                  |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.1.2 NACAIT |  |                  |
| <b>Title:</b> Network and Communications Analysis and Integration Team (NACAIT)  |                                      |  |                  |
| <b>Programs Supported:</b><br><br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Commercial Crew <input checked="" type="checkbox"/> MPCV/SLS<br><br><input type="checkbox"/> CST-100 <input type="checkbox"/> Other /Other Description: |                                      |  |                  |
|  |                                      |  |                  |
| <b>Schedule</b>  |                                      |  |                  |
| <b>Start Date:</b><br>10/1/2015  |                                      | <b>Estimated Completion Date:</b><br>9/30/2016 |                  |
|  |                                      |  |                  |

#### **SOW Reference Text**

##### **3.3.1.2. Network and Communications Analysis and Integration Team (NACAIT)**

The Contractor shall provide support to the NACAIT by coordinating and documenting network communications requirements. Additionally, the Contractor shall collect program requirements changes, work with various program communities to validate the requirements, resolve any discrepancies, and document the final requirements in the program's formal requirement document.

Service level of support will be defined annually by NASA.

- NPRD Documentation Support - The Contractor shall provide for network program requirement documentation (NPRD) generation, maintenance, and publication.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, Orion, SLS, GSDO and Commercial Crew ground-to-ground communications requirements.**

##### **1.2 OBJECTIVE**

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, Orion, SLS and GSDO program tasks delegated to FOD to execute on behalf of the ISS, Orion, SLS, GSDO and Commercial Crew programs. Tasks are not MCC or IPS functions.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO1-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

- Determine communication needs for ISS, Orion, SLS, GSDO and Commercial Crew operational support among all elements that support the ISS, Orion, SLS, GSDO and Commercial Crew Programs
- Gather and consolidate communications requirements into draft versions of the NPRD
- Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, Orion, SLS, GSDO and Commercial Crew Programs on implementation and actual need of communication services
- Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, Orion, SLS, GSDO and Commercial Crew Program communications requirements
- Document final, approved version of ISS, Orion, SLS, GSDO and Commercial Crew communications requirements in the NPRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)
- Provide coordination point of contact for Communications Services Offices (CSO) for communications schedules
- Develop end-to-end data flow diagrams for the ISS, Orion, SLS, GSDO and Commercial Crew Programs
- Support other ISS, Orion, SLS, GSDO and Commercial Crew operational communications-related tasks as required by NASA
- ISS Support includes Integration of CCTCap per SSCN 014337

### **2.2 NASA INPUT REQUIREMENTS**

**International Space Station Operational Communication Overview (IOCO)**

### **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### **2.4 LABOR/MATERIAL/TRAVEL**

#### **Labor Requirements**

Number of personnel (FTE): 1 FTE (0.702 ISS, 0.25 Orion, 0.024 CCP-SpaceX, 0.024 CCP-Boeing)

#### **Material Requirements**

Material: None

#### **Travel Requirements**

Number of trips (1 person/trip): 7 Trips

Trip destination (domestic/international): ISS (Domestic - 1, International - 1 trip of 10-day length), Orion (Domestic - 3), CCP-SpaceX (Domestic - 1), CCP-Boeing (Domestic - 1)

Trip duration: 5 days

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO1-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

### **5.0 AUTHORITY**

#### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO2-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
|   |  |  |  |   |  | 23. UNIT PRICE   |  |
|   |  |  |  |   |  | 24. AMOUNT   |  |
| 1   |  | Cost<br>Labor: (b) (4)<br>Travel: (b) (4)<br>Material: (b) (4)<br>Indirect Cost: (b) (4)                                       |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  |   |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br><b>(b) (4)</b>  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |  |  | Timothy Boyes   |  | 09/09/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |  |  |                         |
|--|--|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |  | <b>Task Order Number:</b><br>FDOC-TO2-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation   |  | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.3 HSF Network Operations Integration |  |                         |
| <b>Title:</b> Human Space Flight (HSF) Network Operations Integration Team (NOIT)  |  |  |                         |
| <b>Programs Supported:</b><br><br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Commercial Crew <input checked="" type="checkbox"/> MPCV/SLS<br><br><input type="checkbox"/> CST-100 <input type="checkbox"/> Other /Other Description: |  |  |                         |
|  |  |  |                         |
| <b>Schedule</b>  |  |  |                         |
| <b>Start Date:</b><br>10/1/2015  |  | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|  |  |  |                         |

#### **SOW Reference Text**

##### **3.3.3. Human Space Flight (HSF) Network Operations Integration**

The Contractor shall provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the Wide Area Network, the NASA Ground Networks, and the NASA Space Network support. Additionally, the Contractor shall assist in integrating the other NASA centers and DoD support for HSF missions including the use of tracking radars. The emphasis of this work shall be in supporting certification that the space communications data services are fully integrated and ready to support HSF missions.

The Contractor shall support the preparation of the:

- CoFR.
- ACAs.
- Communications and data services execution.
- Service performance metrics and evaluation.
- Current and pending anomaly resolution reports.
- Space improvement recommendations.
- Periodic roll-up reports on the status of the space communications data services elements.

Service level of support will be defined annually by NASA.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Technical Description:** Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO2-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

## **1.2 OBJECTIVE**

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the NSG and NACAIT in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollout of the Associate Contractor Agreements necessary for successful integrated services
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements
- ISS Support includes Integration of CCTCap per SSCN 014337

### **2.2 NASA INPUT REQUIREMENTS**

**Network Operations Directive (NOD)**

### **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### **2.4 LABOR/MATERIAL/TRAVEL**

#### **Labor Requirements**

Number of personnel (FTE): 3 FTE (1 ISS, 2 MPCV)

#### **Material Requirements**

Material: None

#### **Travel Requirements**

Number of trips (1 person/trip): 12 Trips (3 domestic ISS, 9 domestic MPCV)

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO2-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

### **5.0 AUTHORITY**

#### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |            |
|---|--|--|--|---|--|--|------------|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS<br/>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |            |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO0-16 Rev 1  |            |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/LOCAL TIME   |            |
|   |  |  |  |   |  |  |            |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |            |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)<br><br><input type="checkbox"/>   |  | 13b. RATING  |            |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |            |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  | CODE   |            |
|   |  |  |  |   |  |  |            |
| 17a. CONTRACTOR/OFFEROR<br>Lockheed Martin Corp IS & GS Engineering Services<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO.   |  | CODE 3VRH3 FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY  |  |  |            |
|   |  |  |  | CODE  |  |  |            |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM |  |   |  |  |            |
|   |  |  |  |   |  |  |            |
| 19. ITEM NO.  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  |  | 21. QUANTITY  | 22. UNIT   | 23. UNIT PRICE   | 24. AMOUNT |
| 1   | Cost: (b) (4)  |  |  |   |  |  |            |
| 2   | Fee: (b) (4)   |  |  |   |  |  |            |
|   | The task order revision has (b) (4) adjustment.<br>The total price of this task order is (b) (4) |  |  |   |  |  |            |
|   | *Period of Performance: 10/1/2015 - 9/30/2016*   |  |  |   |  |  |            |
|   | (Use Reverse and/or Attach Additional Sheets as Necessary)                                       |  |  |   |  |  |            |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  |   | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)  |  |            |
|   |  |  |  |   |  |  |            |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  |   | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |            |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  |   | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |            |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  |   | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS: |  |            |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES <small>Digitally signed by Timothy Boyes<br/>DN: cn=TIMOTHY BOYES, o=NASA, ou=NASA, email=timothy.boyes@nasa.gov</small>  |  |  |            |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |            |
|   |  |  |  | Timothy A. Boyes  |  | 12/02/2015   |            |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |  |  |                  |
|--|--|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |  | <b>Task Order Number:</b><br>FDOC-TO2-16       | <b>Rev:</b><br>1 |
| <b>Contractor:</b> Lockheed Martin Corporation   |  | <b>Contract Number:</b> NNJ09HD46C             |                  |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.3 HSF Network Operations Integration |  |                  |
| <b>Title:</b> Human Space Flight (HSF) Network Operations Integration Team (NOIT)  |  |  |                  |
| <b>Programs Supported:</b><br><div style="display: flex; flex-wrap: wrap; padding: 10px;"> <div style="margin-right: 20px;"><input checked="" type="checkbox"/> SpaceComm</div> <div style="margin-right: 20px;"><input checked="" type="checkbox"/> Station</div> <div style="margin-right: 20px;"><input checked="" type="checkbox"/> Commercial Crew</div> <div style="margin-right: 20px;"><input checked="" type="checkbox"/> MPCV/SLS</div> <div style="margin-right: 20px;"><input type="checkbox"/> CST-100</div> <div><input type="checkbox"/> Other /Other Description:</div> </div> |  |  |                  |
|  |  |  |                  |
| <b>Schedule</b>  |  |  |                  |
| <b>Start Date:</b><br>10/1/2015  |  | <b>Estimated Completion Date:</b><br>9/30/2016 |                  |
|  |  |  |                  |

#### **SOW Reference Text**

##### **3.3.3. Human Space Flight (HSF) Network Operations Integration**

The Contractor shall provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the Wide Area Network, the NASA Ground Networks, and the NASA Space Network support. Additionally, the Contractor shall assist in integrating the other NASA centers and DoD support for HSF missions including the use of tracking radars. The emphasis of this work shall be in supporting certification that the space communications data services are fully integrated and ready to support HSF missions.

The Contractor shall support the preparation of the:

- CoFR.
- ACAs.
- Communications and data services execution.
- Service performance metrics and evaluation.
- Current and pending anomaly resolution reports.
- Space improvement recommendations.
- Periodic roll-up reports on the status of the space communications data services elements.

Service level of support will be defined annually by NASA.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Technical Description:** Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO2-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

## 1.2 OBJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

## 2.0 TASK DESCRIPTION

### 2.1 DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

- Support in the preparation of the Certificate of Flight Readiness (CoFR).
- Assist the [Network Support Group \(NSG\)](#) and [Network and Communications Analysis Integration Team \(NACAIT\)](#) in planning the integrated implementation of space communications data services required to support HSF missions.
- Evaluate required endorsement codes within the CoFR implementation plan
- Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services
- Identify problem areas in providing the services with options for workarounds in the event of service interruption.
- Support all HSF Readiness Reviews
- Provide voice, video, and data assessments for mission services implementation
- Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, Orion, SLS, GSDO [and Commercial Crew](#) communications requirements
- ISS Support includes Integration of CCTCap per SSCN 014337

### 2.2 NASA INPUT REQUIREMENTS

**Network Operations Directive (NOD)**

### 2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### 2.4 LABOR/MATERIAL/TRAVEL

#### Labor Requirements

Number of personnel (FTE): 3 FTE ([0.83](#) ISS, [2.0](#) Orion, [0.085 CCP-SpaceX](#), [0.085 CCP-Boeing](#))

#### Material Requirements

Material: None

#### Travel Requirements

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO2-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

Number of trips (1 person/trip): 12 Trips (4 domestic ISS, 6 domestic Orion, 1 domestic CCP-SpaceX, 1 domestic CCP-Boeing)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

### **5.0 AUTHORITY**

#### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO3-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
|   |  |  |  |   |  | CODE   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  |  |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
|   |  |  |  |   |  | 23. UNIT PRICE   |  |
|   |  |  |  |   |  | 24. AMOUNT   |  |
| 1   |  | Cost<br>Labor: (b) (4)<br>Travel: (b) (4)<br>Material: (b) (4)<br>Indirect Cost: (b) (4)                                       |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br><b>(b) (4)</b>   |  |  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |  |  | Timothy Boyes   |  | 09/09/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|   |   |  |                         |
|---|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO3-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16  | <b>SOW Reference:</b> 3.3.4 Systems Engineering and Integration Support |  |                         |
| <b>Title:</b> Systems Engineering and Integration Support (Strategic Projects)  |   |  |                         |
| <b>Programs Supported:</b><br><div style="display: flex; flex-wrap: wrap; padding: 10px;"> <div style="margin-right: 20px;"><input type="checkbox"/> SpaceComm</div> <div style="margin-right: 20px;"><input checked="" type="checkbox"/> Station</div> <div style="margin-right: 20px;"><input type="checkbox"/> Commercial Crew</div> <div style="margin-right: 20px;"><input type="checkbox"/> MPCV/SLS</div> <div style="margin-right: 20px;"><input type="checkbox"/> CST-100</div> <div><input type="checkbox"/> Other /Other Description:</div> </div> |   |  |                         |
|   |   |  |                         |
| <b>Schedule</b>   |   |  |                         |
| <b>Start Date:</b><br>10/1/2015   |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|   |   |  |                         |

#### **SOW Reference Text**

#### **3.3.4. Systems Engineering and Integration Support**

The Contractor shall provide system engineering support services to the NASA-led effort of defining NASA's ongoing engineering projects. Engineering support shall include systems engineering, spacecraft operability definition, and system development skills to supplement NASA core competencies. The support shall include providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering and proposed alternatives.

Services levels of support will be defined annually by NASA.

### **1.0 GENERAL SCOPE OF WORK**

#### **1.1 PURPOSE**

**Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for Strategic Projects.**

#### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA MSD to the MSD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

### **2.0 TASK DESCRIPTION**

#### **2.1 DESCRIPTION OF WORK**

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO3-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between MSD facility and customer communities, MSD Project Managers, and FDOC contractor personnel.
- 2.) Assist MSD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for current Strategic Projects.
- 3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting MSD facilities for requirements and changes which will affect ongoing Strategic Projects.
- 4.) Assist MSD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term MSD strategic architecture.
- 5.) Assist in any studies and assessments as needed by MSD facility, MSD Project Managers or MSD Customer communities.
- 6.) Represent the MSD customer interests in the planning, design and development of strategic MSD facility capabilities.
- 7.) Coordinate all change activities with the appropriate MSD project manager.
- 8.) Represent the MSD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected MSD Project Manager.
- 10.) Ensure all MSD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, and other MSD Panels and Working Groups). Status changes and issues as required.
- 12.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with MSD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCA architectures. Make recommendations on updating the existing documents.
- 13.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required.
- 14.) Provide materials support as required to support this activity.
- 15.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

## **2.2 NASA INPUT REQUIREMENTS**

**All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.**

## **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

## **2.4 LABOR/MATERIAL/TRAVEL**

### **Labor Requirements**

Number of personnel (FTE): 1.5 FTE (ISS)

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO3-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

**Material Requirements**

Material: \$100k

**Travel Requirements**

Number of trips (1 person/trip): 2 Trips (ISS)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: meeting support

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

**5.0 AUTHORITY**

**F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO4-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
|   |  |  |  |   |  | CODE   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  |  |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
|   |  |  |  |   |  | 23. UNIT PRICE   |  |
|   |  |  |  |   |  | 24. AMOUNT   |  |
| 1   |  | Cost<br>Labor: (b) (4)<br>Travel: (b) (4)<br>Material: (b) (4)<br>Indirect Cost: (b) (4)                                       |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)   |  |  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |  |  | Timothy Boyes   |  | 09/14/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

|  |           |   |
|--|-----------|---|
| 32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE | 32c. DATE | 32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE |
|  |           |   |

|  |   |
|--|---|
| 32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE | 32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE |
|  |   |
|  | 32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE           |
|  |   |

|   |                    |                                 |   |                  |
|---|--------------------|---------------------------------|---|------------------|
| 33. SHIP NUMBER   | 34. VOUCHER NUMBER | 35. AMOUNT VERIFIED CORRECT FOR | 36. PAYMENT   | 37. CHECK NUMBER |
| <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL |                    |                                 | <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL |                  |

|                     |                        |             |
|---------------------|------------------------|-------------|
| 38. S/R ACCOUNT NO. | 39. S/R VOUCHER NUMBER | 40. PAID BY |
|                     |                        |             |

|   |                                    |
|---|------------------------------------|
| 41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT | 42a. RECEIVED BY <i>(Print)</i>    |
| 41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER                | 42b. RECEIVED AT <i>(Location)</i> |
|   | 42c. DATE REC'D <i>(YY/MM/DD)</i>  |
|   | 42d. TOTAL CONTAINERS              |
|   |                                    |

|   |   |  |                         |
|---|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO4-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16  | <b>SOW Reference:</b> 3.3.5 Architectural and Engineering Support |  |                         |
| <b>Title:</b> FDOC-TO4-16 Architectural and Engineering Support   |   |  |                         |
| <b>Programs Supported:</b><br><div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div><input type="checkbox"/> SpaceComm</div> <div><input checked="" type="checkbox"/> Station</div> <div><input type="checkbox"/> Commercial Crew</div> <div><input type="checkbox"/> MPCV/SLS</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div><input type="checkbox"/> CST-100</div> <div><input type="checkbox"/> Other /Other Description:</div> </div> |   |  |                         |
|   |   |  |                         |
| <b>Schedule</b>   |   |  |                         |
| <b>Start Date:</b><br>10/1/2015   |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|   |   |  |                         |

#### **SOW Reference Text**

##### **3.3.5. Architectural and Engineering Support**

The Contractor shall provide system engineering and architectural design support services to the NASA Systems Engineering and ongoing NASA control center space operations engineering projects. All strategic engineering activities will be defined and scheduled by NASA. Engineering activities shall be conducted at JSC, within an office and computer laboratory environment. These NASA directed services shall include:

- Studies and analysis of proposed operations modifications.
- Identification and documentation of alternative operations solutions.
- End-to-end architecture tradeoff assessment.
- Development of strategic and tactical plans.
- Implementation plans and strategies.
- Standards development.
- Investigation of space operations process and reengineering.
- Evaluation of new NASA program requirements.
- Investigation and development of new technologies for possible operations modifications.

Service level of support will be defined annually by NASA.

The Contractor shall support the development, coordination, and refinement of the mission operations facilities strategic vision and tactical plans across all mission operations facilities reflected in the estimates above.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch (CD2).**

**This Task Order is to provide engineering support for the Space Data System standards development.**

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO4-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

## **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
- 2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

### **2.2 NASA INPUT REQUIREMENTS**

All CD requirements.

### **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### **2.4 LABOR/MATERIAL/TRAVEL**

#### **Labor Requirements**

Number of personnel (FTE): 0.6 FTE (SCAN-CCSDS)

#### **Material Requirements**

Material: None

#### **Travel Requirements**

Number of trips (1 person/trip): 2 Trips (1 domestic SCAN-CCSDS, 1 international SCAN-CCSDS)

Trip destination (domestic/international): 1 domestic, 1 international

Trip duration: 5 days

Trip purpose: Support bi-annual CCSDS Data Standards Working Group meetings

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO4-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

#### **5.0 AUTHORITY**

##### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS<br/>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C               |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO4-16 Rev 1                        |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP  |  |  |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES                          |  | 21. QUANTITY  |  | 22. UNIT   |  |
| 23. UNIT PRICE  |  | 24. AMOUNT   |  |   |  |  |  |
| 1   |  | Cost<br>Labor: (b) (4)                                     |  | 1   |  | Lot  |  |
|   |  |  |  |   |  | \$ (b) (4)   |  |
| 2   |  | Fee  |  | 1   |  | Lot  |  |
|   |  |  |  |   |  | \$ (b) (4)   |  |
|   |  | The total price of this task order is (b) (4)              |  |   |  |  |  |
|   |  | *Period of Performance: 10/1/2015 - 9/30/2016*             |  |   |  |  |  |
|   |  | (Use Reverse and/or Attach Additional Sheets as Necessary) |  |   |  |  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  |   |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)              |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  |   |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)<br><br>Timothy Boyes   |  | 31c. DATE SIGNED<br><br>11/04/2015                                     |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |   |  |                  |
|--|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |   | <b>Task Order Number:</b><br>FDOC-TO4-16       | <b>Rev:</b><br>1 |
| <b>Contractor:</b> Lockheed Martin Corporation   |   | <b>Contract Number:</b> NNJ09HD46C             |                  |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.5 Architectural and Engineering Support |  |                  |
| <b>Title:</b> FDOC-TO4-16 Rev1 Architectural and Engineering Support   |   |  |                  |
| <b>Programs Supported:</b><br><div style="display: flex; flex-wrap: wrap; padding: 10px;"> <div style="margin-right: 20px;"><input type="checkbox"/> SpaceComm</div> <div style="margin-right: 20px;"><input type="checkbox"/> Station</div> <div style="margin-right: 20px;"><input type="checkbox"/> Commercial Crew</div> <div style="margin-right: 20px;"><input type="checkbox"/> MPCV/SLS</div> <div style="margin-right: 20px;"><input type="checkbox"/> CST-100</div> <div><input checked="" type="checkbox"/> Other /Other Description: SCAN</div> </div> |   |  |                  |
|  |   |  |                  |
| <b>Schedule</b>  |   |  |                  |
| <b>Start Date:</b><br>10/1/2015  |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                  |
|  |   |  |                  |

#### **SOW Reference Text**

##### **3.3.5. Architectural and Engineering Support**

The Contractor shall provide system engineering and architectural design support services to the NASA Systems Engineering and ongoing NASA control center space operations engineering projects. All strategic engineering activities will be defined and scheduled by NASA. Engineering activities shall be conducted at JSC, within an office and computer laboratory environment. These NASA directed services shall include:

- Studies and analysis of proposed operations modifications.
- Identification and documentation of alternative operations solutions.
- End-to-end architecture tradeoff assessment.
- Development of strategic and tactical plans.
- Implementation plans and strategies.
- Standards development.
- Investigation of space operations process and reengineering.
- Evaluation of new NASA program requirements.
- Investigation and development of new technologies for possible operations modifications.

Service level of support will be defined annually by NASA.

The Contractor shall support the development, coordination, and refinement of the mission operations facilities strategic vision and tactical plans across all mission operations facilities reflected in the estimates above.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch (CD2).**

**This Task Order is to provide engineering support for the Space Data System standards development.**

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO4-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

## **1.2 OBJECTIVE**

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

## **2.0 TASK DESCRIPTION**

### **2.1 DESCRIPTION OF WORK**

- 1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
- 2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

### **2.2 NASA INPUT REQUIREMENTS**

All CD requirements.

### **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### **2.4 LABOR/MATERIAL/TRAVEL**

#### **Labor Requirements**

Number of personnel (FTE): 0.1 FTE (SCAN-CCSDS) Rev 1

#### **Material Requirements**

Material: None

#### **Travel Requirements**

Number of trips (1 person/trip): 2 Trips (1 domestic SCAN-CCSDS, 1 international SCAN-CCSDS)

Trip destination (domestic/international): 1 domestic, 1 international

Trip duration: 5 days

Trip purpose: Support semi-annual CCSDS Data Standards Working Group meetings

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC

|   |  |                  |
|---|--|------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO4-16 | <b>Rev:</b><br>1 |
|---|--|------------------|

Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

#### **5.0 AUTHORITY**

##### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b><br><b>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>7</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO5-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
|   |  |  |  |   |  | 23. UNIT PRICE   |  |
|   |  |  |  |   |  | 24. AMOUNT   |  |
| 1   |  | Cost<br>Labor: \$ (b) (4)<br>Travel: \$ (b) (4)<br>Material: \$ (b) (4)<br>Indirect Cost: (b) (4)                              |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | (b) (4)  |  |
|   |  |  |  |   |  | (b) (4)  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)   |  |  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |  |  | Timothy Boyes   |  | 09/14/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|  |   |  |                         |
|--|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order  |   | <b>Task Order Number:</b><br>FDOC-TO5-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation   |   | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16   | <b>SOW Reference:</b> 3.3.4 Systems Engineering and Integration Support |  |                         |
| <b>Title:</b> MCCS Systems Engineering and Integration Support   |   |  |                         |
| <b>Programs Supported:</b><br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input type="checkbox"/> Commercial Crew <input checked="" type="checkbox"/> MPCV/SLS<br><input checked="" type="checkbox"/> CST-100 <input type="checkbox"/> Other /Other Description: |   |  |                         |
|  |   |  |                         |
| <b>Schedule</b>  |   |  |                         |
| <b>Start Date:</b><br>10/1/2015  |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|  |   |  |                         |

#### **SOW Reference Text**

#### **3.3.4. Systems Engineering and Integration Support**

The Contractor shall provide system engineering support services to the NASA-led effort of defining NASA's ongoing engineering projects. Engineering support shall include systems engineering, spacecraft operability definition, and system development skills to supplement NASA core competencies. The support shall include providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering and proposed alternatives.

Services levels of support will be defined annually by NASA.

### **1.0 GENERAL SCOPE OF WORK**

#### **1.1 PURPOSE**

**Provide Mission Control Center Systems system engineering and sustaining support services.**

#### **1.2 OBJECTIVE**

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA MSD to the MSD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or Equipment Replacement (ER) development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

### **2.0 TASK DESCRIPTION**

#### **2.1 DESCRIPTION OF WORK**

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO5-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

- 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.
- 2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.
- 3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.
- 4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term CD strategic architecture.
- 5.) Assist in any studies and assessments as needed by CD facility, CD Project Managers or CD Customer communities.
- 6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.
- 7.) Coordinate all change activities with the appropriate CD project manager/lead.
- 8.) Represent the CD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected CD Project Manager.
- 10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.
- 11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.
- 12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.
- 13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.
- 14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with CD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.
- 15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.
- 16.) Support MCCS activities by supplying information as requested on MCCS.
- 17.) Provide materials support as required to support this activity.
- 18.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.
- 19.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.
- 20.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on FOD provided equipment and software or use of non-FOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.
- 21) Provide Full architectural understanding of all MCCS Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking.

|   |  |                         |
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| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO5-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

22) Provide Working knowledge of the MCC systems supporting Orion missions. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

23) Provide Experience with Orion missions and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

24) Provide Support for development and evaluation of Orion and SLS CDRs. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

25) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting meetings with GSDO (KSC) and SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

26) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

27) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

28) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

29) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, Orion missions, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is in conflict with another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

30) Provide Boeing CST-100 SAR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to

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|---|--|-------------------------|
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|---|--|-------------------------|

interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

31) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

32) Provide Boeing CST-100 testing support and coordination.

33) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY16 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

34) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

35) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

36) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

## **2.2 NASA INPUT REQUIREMENTS**

**All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.**

## **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

## **2.4 LABOR/MATERIAL/TRAVEL**

### **Labor Requirements**

Number of personnel (FTE): 6.5 FTE (4 ISS, 1 MPCV, 1.5 CST-100)

|   |  |                         |
|---|--|-------------------------|
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|---|--|-------------------------|

**Material Requirements**

Material: \$320K ISS, \$40K MPCV, \$40K CST-100 (for purchased labor)

**Travel Requirements**

Number of trips (1 person/trip): 4 Trips (3 domestic ISS, 1 international ISS)

Trip destination (domestic/international): 3 domestic ISS, 1 international ISS

Trip duration: 5 days

Trip purpose: meeting support

**3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

**4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

**5.0 AUTHORITY**

**F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS<br/>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>6</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO8-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|   |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  | CODE   |  |
|   |  |  |  |   |  |  |  |
| 17a. CONTRACTOR/ OFFEROR  |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  | CODE   |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
|   |  |  |  |   |  | 23. UNIT PRICE   |  |
|   |  |  |  |   |  | 24. AMOUNT   |  |
| 1   |  | Cost<br>Labor: (b) (4)<br>Travel: \$ (b) (4)<br>Material: \$ (b) (4)<br>Indirect Cost: (b) (4)                                 |  | 1   |  | LOT \$ (b) (4)   |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT \$ (b) (4)   |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)   |  |  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|   |  |  |  | Timothy Boyes   |  | 09/09/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|   |  |  |                                   |
|---|--|--|-----------------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order |  | <b>Task Order Number:</b><br>FDOC-TO8-16       | <b>Rev:</b><br>Original           |
| <b>Contractor:</b> Lockheed Martin Corporation  |  | <b>Contract Number:</b> NNJ09HD46C             |                                   |
| <b>GFY:</b> FY16  | <b>SOW Reference:</b> 3.3.7 Alternate Facility Manager |  |                                   |
| <b>Title:</b> Alternate Facility Manager  |  |  |                                   |
| <b>Programs Supported:</b>  |  |  |                                   |
| <input type="checkbox"/> SpaceComm  | <input checked="" type="checkbox"/> Station            | <input type="checkbox"/> Commercial Crew       | <input type="checkbox"/> MPCV/SLS |
| <input type="checkbox"/> CST-100  | <input type="checkbox"/> Other /Other Description:     |  |                                   |
|   |  |  |                                   |
| <b>Schedule</b>   |  |  |                                   |
| <b>Start Date:</b><br>10/1/2015   |  | <b>Estimated Completion Date:</b><br>9/30/2016 |                                   |
|   |  |  |                                   |

#### **SOW Reference Text**

##### **3.3.7. Alternate Facility Manager**

The contractor shall provide Alternate Facility Manager support services to the NASA-led effort of providing Primary Facility Manager Services. Alternate Facility Manager support services shall include safety and health, facility and operations functions to supplement NASA core competencies. Services levels of support will be defined annually by NASA.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Provide assistance to or act as the Facility Manager.**

##### **1.2 OBJECTIVE**

Ensure that safety, operations and facility support issues are resolved in a timely manner.

#### **2.0 TASK DESCRIPTION**

##### **2.1 DESCRIPTION OF WORK**

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden

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- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between MSD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBS)
- Respond to Hot and Cold Calls
- Respond to Building Issues
- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning
- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)
- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)
- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance, operations, and engineering. This effort includes activities such as analysis and integration
- Support continuous improvement efforts to improve overall efficiency of facility operations. This effort includes activities such as process improvements and design reviews
- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

## **2.2 NASA INPUT REQUIREMENTS**

**None required.**

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|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO8-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

### **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

### **2.4 LABOR/MATERIAL/TRAVEL**

#### **Labor Requirements**

Number of personnel (FTE): 1 FTE (ISS)

#### **Material Requirements**

Material: None

#### **Travel Requirements**

Number of trips (1 person/trip): 1 Trip (ISS)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: support facility-related safety training and/or benchmarking activities

### **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

### **5.0 AUTHORITY**

#### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

|   |  |                         |
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| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO8-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|  |  |  |  |   |  |  |  |
|--|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS<br/>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>  |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>5</b>  |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C  |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO9-16  |  |
| 7. FOR SOLICITATION INFORMATION CALL:  |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/ LOCAL TIME  |  |
|  |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov   |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE   |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>  |  | 13b. RATING  |  |
|  |  |  |  |   |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP |  |
| 15. DELIVER TO   |  | CODE   |  | 16. ADMINISTERED BY   |  | CODE   |  |
|  |  |  |  |   |  |  |  |
| 17a. CONTRACTOR/ OFFEROR   |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY   |  |
|  |  |  |  |   |  | CODE   |  |
|  |  |  |  |   |  |  |  |
| 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER <input type="checkbox"/>   |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
|  |  |  |  |   |  |  |  |
| 19. ITEM NO.   |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT   |  |
|  |  |  |  |   |  | 23. UNIT PRICE   |  |
|  |  |  |  |   |  | 24. AMOUNT   |  |
| 1  |  | Cost<br>Labor: \$ (b) (4)<br>Travel: \$ (b) (4)<br>Material: (b) (4)<br>Indirect Cost: (b) (4)                                 |  | 1   |  | LOT \$ (b) (4)   |  |
| 2  |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT \$ (b) (4)   |  |
|  |  |  |  |   |  |  |  |
| 25. ACCOUNTING AND APPROPRIATION DATA  |  |  |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)   |  |  |  |
| 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |  |  | 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED   |  |  |  |
| 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:   |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR   |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)  |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED   |  |
|  |  |  |  | Timothy Boyes   |  | 09/14/2015   |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|   |   |  |                         |
|---|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO9-16       | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16  | <b>SOW Reference:</b> 3.3.1 Ground Segment Control Board (GSCB) |  |                         |
| <b>Title:</b> Ground Segment Control Board (GSCB) Technical Support   |   |  |                         |
| <b>Programs Supported:</b><br><br><input type="checkbox"/> SpaceComm <input checked="" type="checkbox"/> Station <input checked="" type="checkbox"/> Commercial Crew <input type="checkbox"/> MPCV/SLS<br><br><input type="checkbox"/> CST-100 <input type="checkbox"/> Other /Other Description: |   |  |                         |
|   |   |  |                         |
| <b>Schedule</b>   |   |  |                         |
| <b>Start Date:</b><br>10/1/2015   |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|   |   |  |                         |

#### **SOW Reference Text**

##### **3.3.1. Ground Segment Control Board (GSCB)**

The GSCB is a multi-lateral board that established a baseline for and controls subsequent change to operations and mission integration ground facilities related products. The GSCB also provides a forum for the resolution of technical and schedule issues, including joint operations and utilization issues.

The Security Analysis and Support Team (SART) and the Network and Communications Analysis and Integration Team (NACAIT) sub-teams chartered under the GSCB, work specific functional areas for ground systems interfaces. The Contractor shall provide support to these teams.

The Contractor shall provide GSCB engineering and Technical Interchange Meeting (TIM) support, act as International Ground System Specification (IGSS) book manager, and provide Software Review Control Panel (SRCP) support for GSCB-related topics. The Contractor shall also provide GSCB administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging. In addition to these tasks, the Contractor shall provide support for IP Network requirements and implementation coordination.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**Provide technical support to the Ground Segment Control Board (GSCB)**

##### **1.2 OBJECTIVE**

Ensure all GSCB activities are supported

#### **2.0 TASK DESCRIPTION**

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO9-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

## **2.1 DESCRIPTION OF WORK**

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support
- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- Support for IP End-to-End test coordination
- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
- IP Network requirements and implementation coordination
- ISS Support includes Integration of CCtCap per SSCN 014337

## **2.2 NASA INPUT REQUIREMENTS**

All NASA Programmatic requirements.

## **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

## **2.4 LABOR/MATERIAL/TRAVEL**

### **Labor Requirements**

Number of personnel (FTE): 1.5 FTE (ISS)

### **Material Requirements**

Material: None

### **Travel Requirements**

Number of trips (1 person/trip): 5 Trips (2 domestic ISS, 3 international ISS)

Trip destination (domestic/international): 2 domestic ISS, 3 international ISS

Trip duration: 5 days

Trip purpose: GSCB meetings with International Partners

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

|   |  |                         |
|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO9-16 | <b>Rev:</b><br>Original |
|---|--|-------------------------|

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

#### **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

#### **5.0 AUTHORITY**

##### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS<br/>OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, &amp; 30</b>   |  |  |  | 1. REQUISITION NUMBER   |  | PAGE 1 OF<br><b>6</b>                      |  |
| 2. CONTRACT NO.<br><br>NNJ09HD46C   |  | 3. AWARD/EFFECTIVE DATE<br><br>See Block 31C   |  | 4. ORDER NUMBER   |  | 5. SOLICITATION NUMBER<br><br>FDOC-TO11-16 |  |
| 7. FOR SOLICITATION INFORMATION CALL:   |  | a. NAME  |  | b. TELEPHONE NUMBER (No collect calls)  |  | 8. OFFER DUE DATE/LOCAL TIME               |  |
|   |  |  |  |   |  |  |  |
| 9. ISSUED BY<br>NASA Johnson Space Center<br>Houston, TX 77058-3696<br>Timothy Boyes, CO<br>Tel. No: (281) 483-1838<br>Email: timothy.a.boyes@nasa.gov  |  |  |  | 10. THIS ACQUISITION IS <input type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:<br><input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMEN-OWNED SMALL BUSINESS<br><input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM NAICS:<br><input type="checkbox"/> SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS <input type="checkbox"/> EDWOSB <input type="checkbox"/> 8 (A) <span style="float: right;">SIZE STANDARD:</span> |  |  |  |
| 11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED<br><br><input type="checkbox"/> SEE SCHEDULE  |  | 12. DISCOUNT TERMS   |  | 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)<br><input type="checkbox"/>   |  | 13b. RATING                                |  |
|   |  |  |  | 14. METHOD OF SOLICITATION<br><input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input type="checkbox"/> RFP  |  |  |  |
| 15. DELIVER TO  |  | CODE   |  | 16. ADMINISTERED BY   |  |  |  |
|   |  |  |  | CODE  |  |  |  |
| 17a. CONTRACTOR/OFFEROR   |  | CODE 3VRH3   |  | FACILITY CODE 4N497   |  | 18a. PAYMENT WILL BE MADE BY               |  |
| Lockheed Martin Corporation<br>Attn: Karen Beuchaw<br>P.O. Box 58487<br>Houston, TX 77258<br>TELEPHONE NO. 281-283-4461   |  |  |  |   |  | CODE                                       |  |
| <input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER  |  |  |  | 18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED <input type="checkbox"/> SEE ADDENDUM  |  |  |  |
| 19. ITEM NO.  |  | 20. SCHEDULE OF SUPPLIES/SERVICES  |  | 21. QUANTITY  |  | 22. UNIT                                   |  |
| 23. UNIT PRICE  |  | 24. AMOUNT   |  |   |  |  |  |
| 1   |  | Cost<br>Labor: \$ (b) (4)<br>Travel: \$ (b) (4)<br>Material: \$ (b) (4)<br>Indirect Cost: \$ (b) (4)                           |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | \$ (b) (4)                                 |  |
| 2   |  | Fee<br><br>*Period of Performance: 10/1/2015 - 9/30/2016*<br><i>(Use Reverse and/or Attach Additional Sheets as Necessary)</i> |  | 1   |  | LOT  |  |
|   |  |  |  |   |  | \$ (b) (4)                                 |  |
| 25. ACCOUNTING AND APPROPRIATION DATA   |  |  |  | 26. TOTAL AWARD AMOUNT (For Govt. Use Only)<br>\$ (b) (4)   |  |  |  |
| <input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA  |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA   |  |  |  | <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED  |  |  |  |
| <input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND<br><br>DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED |  |  |  | <input type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER<br>DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:  |  |  |  |
| 30a. SIGNATURE OF OFFEROR/CONTRACTOR  |  |  |  | 31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER)<br><br>TIMOTHY BOYES   |  |  |  |
| 30b. NAME AND TITLE OF SIGNER (Type or print)   |  | 30c. DATE SIGNED   |  | 31b. NAME OF CONTRACTING OFFICER (Type or print)  |  | 31c. DATE SIGNED                           |  |
|   |  |  |  | Timothy Boyes   |  | 09/07/2015                                 |  |

| 19.<br>ITEM NO. | 20.<br>SCHEDULE OF SUPPLIES/SERVICES | 21.<br>QUANTITY | 22.<br>UNIT | 23.<br>UNIT PRICE | 24.<br>AMOUNT |
|-----------------|--------------------------------------|-----------------|-------------|-------------------|---------------|
|                 |                                      |                 |             |                   |               |

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED    ☐ INSPECTED    ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: \_\_\_\_\_

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32c. DATE

32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER

34. VOUCHER NUMBER

35. AMOUNT VERIFIED  
CORRECT FOR

36. PAYMENT

37. CHECK NUMBER

☐ PARTIAL    ☐ FINAL

☐ COMPLETE    ☐ PARTIAL    ☐ FINAL

38. S/R ACCOUNT NO.

39. S/R VOUCHER NUMBER

40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT

41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER

41c. DATE

42a. RECEIVED BY *(Print)*

42b. RECEIVED AT *(Location)*

42c. DATE REC'D *(YY/MM/DD)*

42d. TOTAL CONTAINERS

|   |   |  |                         |
|---|---|--|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order   |   | <b>Task Order Number:</b><br>FDOC-TO11-16      | <b>Rev:</b><br>Original |
| <b>Contractor:</b> Lockheed Martin Corporation  |   | <b>Contract Number:</b> NNJ09HD46C             |                         |
| <b>GFY:</b> FY16  | <b>SOW Reference:</b> 3.3.4 Systems Engineering and Integration Support |  |                         |
| <b>Title:</b> Systems Engineering and Integration Support MPCV SE&I   |   |  |                         |
| <b>Programs Supported:</b><br><div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"><input type="checkbox"/> SpaceComm</div> <div style="text-align: center;"><input type="checkbox"/> Station</div> <div style="text-align: center;"><input type="checkbox"/> Commercial Crew</div> <div style="text-align: center;"><input checked="" type="checkbox"/> MPCV/SLS</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;"><input type="checkbox"/> CST-100</div> <div style="text-align: center;"><input type="checkbox"/> Other /Other Description:</div> </div> |   |  |                         |
|   |   |  |                         |
| <b>Schedule</b>   |   |  |                         |
| <b>Start Date:</b><br>10/1/2015   |   | <b>Estimated Completion Date:</b><br>9/30/2016 |                         |
|   |   |  |                         |

#### **SOW Reference Text**

##### **3.3.4. Systems Engineering and Integration Support**

The Contractor shall provide system engineering support services to the NASA-led effort of defining NASA's ongoing engineering projects. Engineering support shall include systems engineering, spacecraft operability definition, and system development skills to supplement NASA core competencies. The support shall include providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering and proposed alternatives.

Services levels of support will be defined annually by NASA.

#### **1.0 GENERAL SCOPE OF WORK**

##### **1.1 PURPOSE**

**The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.**

##### **1.2 OBJECTIVE**

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

#### **2.0 TASK DESCRIPTION**

|   |   |                         |
|---|---|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO11-16 | <b>Rev:</b><br>Original |
|---|---|-------------------------|

## **2.1 DESCRIPTION OF WORK**

### **1.) Provide technical baseline administration**

#### **a.) Maintain the technical baseline.**

1. Change management - evaluate MPCV programmatic changes for impact to ExCB Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of ExCB-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) ExCB/ FOD Advocacy - ensure ExCB/ FOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

### **2.) Provide Cradle Support**

#### **a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.**

### **3.) Provide Technical Forum Support**

a.) Provide technical support to the MPCV and ExCB/ FOD forums (e.g. ExCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

### **4.) Provide Interface Definition Support**

a.) Aid in determination, refinement, and documentation of ExCB external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide ExCB inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

|   |   |                         |
|---|---|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO11-16 | <b>Rev:</b><br>Original |
|---|---|-------------------------|

## **2.2 NASA INPUT REQUIREMENTS**

**Access to all ExCB-level requirements and design documentation**

## **2.3 PERIOD OF PERFORMANCE**

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

## **2.4 LABOR/MATERIAL/TRAVEL**

### **Labor Requirements**

Number of personnel (FTE): 0.25 FTE (MPCV)

### **Material Requirements**

Material: None

### **Travel Requirements**

Number of trips (1 person/trip): none

Trip destination (domestic/international): none

Trip duration: none

Trip purpose: none

## **3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE**

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

## **4.0 SECURITY REQUIREMENTS**

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

## **5.0 AUTHORITY**

### **F.5 ORDERING (FAR 52.216-18) (OCT 1995)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

|   |   |                         |
|---|---|-------------------------|
| <b>Facilities Development and Operations Contract</b><br>Facility Engineering and Support Services Task Order | <b>Task Order Number:</b><br>FDOC-TO11-16 | <b>Rev:</b><br>Original |
|---|---|-------------------------|

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

(c) If mailed, an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) is considered issued when the Government deposits the order in the mail. Orders may be issued orally, by facsimile, or by electronic commerce methods only if authorized in the Schedule.