

## **Task Order Plan (TOP)**

**Contract Number:** NNM05AB50C  
**TO Title:** Constellation Support to Mission Operations  
**TO Number:** 35-000002 **Revision:** 00

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**Period of Performance:** 10/02/2010 to 09/30/2011

**MSFC Initiator:** Dale McElyea (Task Initiator)

(b)(4)



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**Emergency:** No

The Jacobs ESTS Group will provide support to the Mission Operations Laboratory (MOL) Directorate on the Program of Record (POR) in Fiscal Year 2011 under the Engineering, Science and Technical Services Contract, NNM05AB50C. This support will include transportation and logistics, logistics risk analysis, ground operations and operations verifications.

### **1.0 Task Order Description & Objectives**

#### **Subelement CA: Transportation & Logistics Support**

The Jacobs ESTS Group will provide logistics engineering support applying tenets of Integrated Logistics Support (ILS) for flight hardware and ground support equipment handling and transportation. Support to EO40 includes logistics risk analysis and planning for test and ground operations; ground processing timelines; functional objectives; verification efforts and milestone design reviews for the Ares & Constellation element and project/program offices.

The Jacobs ESTS Group support will include, but is not limited to:

- Develop handling and transportation procedures
- Develop input for Threats and Opportunities report
- Review and provide input for timeline, functional objectives, and verification efforts
- Develop input for project schedules and activity reports
- Participate in major milestone reviews

#### **Subelement CB: Logistics and Risk Analysis Support**

The Jacobs ESTS Group will provide logistics engineering support for logistics risk analysis, logistics planning and integration. Support to EO40 includes but is not limited to logistics planning, integration, oversight/insight, ownership acceptance and transfer planning, assessing requirements verification, and functional objective development in coordination with other NASA Centers for flight hardware and ground support equipment for the Ares & Constellation element and project/program offices.

The Jacobs ESTS Group support will include, but is not limited to:

- Perform logistics risk analysis of flight hardware and ground support equipment (GSE) supporting infrastructures

- Develop input for standardizing logistics Data Requirements Descriptions (DRDs)
- Integrate and maintain Integrated Logistics Support Plans (ILSPs)
- Review and provide recommendations for change requests
- Develop input for actions received from the project office

### **Subelement CC: Ground Operations & TVR-O Support**

The Jacobs ESTS Group will provide ground operations engineering and systems engineering support for test verification requirements for operations (TVR-O) activities and for ground operations. Support to EO30 and EO40 will include requirements formulation, planning, analysis, integration, verification, and development and management of product schedules. The Jacobs ESTS Group will coordinate with EO30, EO40, Ares element and project offices, and other NASA Centers.

The Jacobs ESTS Group support will include, but is not limited to:

- Perform requirements analysis
- Define and execute mapping of requirements
- Develop and maintain CRADLE tool templates
- Develop tool queries and reports
- Develop demonstrations of CRADLE computerized tool
- Develop CRADLE Implementation Plan
- Perform CRADLE HTML conversions and document publishing
- Develop and coordinate change requests (CRs)
- Develop user guides for product applications
- Develop maintain a log of issues to track problems for resolution
- Integrate Elements' requirements to ensure uniformity
- Develop and maintain a discreet event simulation and modeling tool
- Provide technical assistance to Element TVR-O representatives
- Develop and maintain detailed product schedule
- Develop input for ground operations planning
- Develop input for verification of ground operations requirements
- Develop input for ground operations timeline assessment
- Develop input for ground operations functional objectives assessment
- Develop input for update of the Ground Operations Data Book (GODB)

## **2.0 Technical Approach (Including required input, guidelines & assumptions)**

The Jacobs ESTS Group personnel will perform the work described above using standard office automation software including, but not limited to, Excel, PowerPoint, Word, and Acrobat. The Jacobs ESTS Group personnel will use CRADLE for TVR-O support and a discrete even modeling and simulation tool, Extend, to assist in supporting timeline activity.

The Jacobs ESTS Group personnel will coordinate and interface with flight and ground hardware designers and stakeholders including but not limited to:

- The EO40 ground operations and logistics teams; EO30 TVR-O team; ES21 GSE design team; EV81 systems engineering team; EV82 human factors engineering team; EV94 data architecture team; JP10 VI O&S office; JP20 operations and logistics offices; JP30 design subsystems, logistics and test offices; JP50 J2-x engine design, systems engineering and logistics offices; QD33 reliability and maintainability offices; and the Program Supportability, Operability, Affordability, and Logistics (SOAL) Working Group (SOALWG).
- Integration and coordination of tasks will be accomplished as a continuous process necessary to ensure a cohesive, accurate, and uniform approach to providing value-added products that meet engineering and project schedules. Development, review, implementation, and management of documents and data inputs will be done in a collaborative manner. Data mining will be applied to support research, analysis, and

assessment efforts. Integrated Logistics Support (ILS) methodologies and techniques will be applied to new and modified flight hardware and GSE. Specific products will be worked using Book Managers for the TVR-O Cradle and GODB efforts. Integration will include vertical and lateral coordination between elements, projects, program office, and NASA Centers.

The Jacobs ESTS Group personnel will participate in meetings and working groups to complete the assigned tasks including but not limited to:

- Major milestone reviews such as: Critical Layout Reviews (CLORs) and Interim Design Review.
- Established meetings and working groups: US LSI Integrated and Support Product Team (ISPT), US Ground Operations and Support Equipment (GO&SE) Integrated Product Team (IPT), VI ILSWG, VI Ground Operations WG (GOWG), VI Operability and Supportability Team (OST) and the Program SOALWG. Various branch, organizational, technical interchange, and management meetings.

### **3.0 Discussion of Skills Required**

This task requires junior to senior level engineers or equivalent experience with systems engineering and requires knowledge of analytical integration practices. Excellent written and verbal communication skills are required.

#### **Subelement CA: Transportation & Logistics Support**

This Subelement requires experience in logistics and supportability engineering, maintenance, transportation and cost modeling. Specific experience in an Integrated Logistics Support (ILS) environment with MIL-STD-1338 or MIL-HDBK-502 experience is desired. Specific experience with the Cost Analysis Strategy Assessment (CASA) life cycle cost model is desired.

#### **Subelement CB: Logistics and Risk Analysis Support**

This Subelement requires experience in logistics and supportability engineering, maintenance, cost modeling, and systems integration. Specific experience in an Integrated Logistics Support (ILS) environment with MIL-STD-1338 or MIL-HDBK-502 experience is desired. Experience with large, complex systems and space launch vehicle ground processing is desired.

#### **Subelement CC: Ground Operations & TVR-O Support**

This Subelement requires experience in ground operations engineering, requirements formulation and management, discrete event simulation modeling, information management systems, process analysis, and timeline development. Specific experience with discrete event simulation models, particularly Extend, is desired. Experience with CRADLE requirements management tool desired. Computer science knowledge and experience desired.

### **4.0 Special Tools Required**

Extend, CRADLE

### **5.0 Participating Subcontractors**

None

### **6.0 Milestones & Deliverables**

Deliverables are provided in accordance with project and element requirements and schedules. Monthly/Weekly Activity Reports are delivered for all subelements.



# ESTS Contract Task Order Request Performance Plan

Task Order Title: [Constellation Support to Mission Operations](#)

Task Order Number: [35-000002](#) Revision: 00

Category	Weighting Technical %	End of Period Technical Score
<b>Technical Objectives</b>	65%	X <u>65%</u> = <b>Justification</b>
Provide Transportation, Logistics, Ground Operations, and TVR-O engineering support for development of hardware handling and transportation procedures, logistics risk analysis, ground operations development, TVR-O development using CRADLE tool, timelines, and system integration. Apply ILS techniques and methodology. Support requirements definition, verification, and integration activities. Participate in technical interchange meetings, design reviews, and management reviews.		
<b>Schedule Objectives (Milestones)</b>	Weighting Schedule % <u>10%</u> <i>(min 10%)</i>	Schedule Score X <u>10%</u> = <b>Justification</b>
Analyses and reports are to be delivered at designated milestones except as negotiated by NASA and Jacobs.		
<b><u>Cost (actual vs. negotiated)</u></b>	Weighting Cost% <u>25%</u> <i>(min.25%)</i>	Cost Score X <u>25%</u> = <b>Justification</b>
	Weighting Total % <u>100.00%</u>	<b>Total Score</b>

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## Technical, Schedule, and Cost Grading Scale

Score	Description
9.0-10.0	Exceeded TO Performance Plan objectives resulting in major benefit(s)
8.0-8.9	Exceeded TO Performance Plan objectives resulting in modest benefit(s)
7.0-7.9	Met TO Performance Plan objectives
3.0-6.9	Did not meet all TO Performance Plan objectives resulting in minimal impact or requiring additional agency funds
0.0-2.9	Did not meet TO Performance Plan objectives resulting in substantial impact and/or requiring additional agency funds

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**Comments:**

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**Risk Assessment**

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**Task Order Risk Assessment to Cost, Technical, and Schedule**

List identified risk associated with Task Order performance as related to task cost, technical, and schedule. Classify the risk(s) according to probability of occurrence and impact as defined below and enter the risk into risk matrix.

Risk	Risk Type	Probability (1-4)	Impact (1-4)	Risk Description
Risk C1	Cost			No cost risk identified.
Risk C2	Cost			
Risk T1	Technical			No cost technical identified.
Risk T2	Technical			
Risk S1	Schedule			No cost schedule identified.
Risk S2	Schedule			

\*Note: See page 2 for risk mitigation plan for those risks which are Primary Risk Drivers.



