



1. DOCUMENT NO(S)  
 TO Ref: SPI  
 TO No.: 00458  
 TO Rev: RFP  
 Plan Rev: A

Kennedy Space Center  
 Document Continuation Sheet

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 3. OFFICE:

4. DOCUMENT:  
 Title: CLV Upper Stage Umbilical Ground and Flight Plates Support

5. DATE:

**A. PROJECT DESCRIPTION & SCOPE**

**RFP B:** The purpose of this RFP is to request the following actions: (1) Update the Task Order (TO) schedule to match the latest schedule of Marshall Space Flight Center (MSFC) Upper Stage Project Technical Task Agreement (TTA) with Kennedy Space Center (KSC) Engineering Directorate (NE); (2) Reassess the estimate for the design and development of cryogenic / pneumatic Quick Disconnects (QDs) based on updated requirements; (3) Reassess the estimate for other ODC such as, Engineering software support, software training and travel; (4) Provide consultants for Pro/ENGINEER and Drawing Checking support; (5) Update the labor estimate associated with the schedule update; (6) Adjust labor target values to reflect actual effort for the months of October 2008 through April 2009.

Task Order Revision A is generated without an accompanying plan. Task Order Plan revision Basic remains in effect. The purpose of this revision is to add authority for the existing scope.

Basic: The purpose of this Revision is to define project scope continued from CY6/FY08 defined in TO 6SPI00458, Revision D. Unless specifically addressed below, the scope of work defined in 6SPI00458, Revision D remains unchanged.

**CY6/FY08 Activity**

During CY6/FY08 the USTDC team supported the preliminary design efforts as requested by the NASA Lead Design Engineers (LDEs). The umbilical design details were completed for Design Analysis Cycles -2B (DAC-2B). Effort required was less than originally anticipated and the labor target values have been adjusted to reflect actual effort for CY6/FY08.

**CY7/FY09 Activity**

CY7/FY09 activity provides technical expertise for the design of Flight and Ground Side Umbilical Plates (UP) and Integrated Stage Test Article (ISTA) in support of Marshall Space Flight Center (MSFC) Upper Stage Project Technical Task Agreement (TTA) with Kennedy Space Center (KSC) Engineering Directorate (NE).

This Task Order (TO) directs the contractor to provide engineering and project support of the MSFC Constellation Crew Launch Vehicle Upper Stage (CLV US) Project TTA with KSC NE in developing T-0 umbilical ground side and flight side plates for the CLV.

The TTA is a multi-year agreement to design, fabricate, test and certify T-0 umbilical flight and ground half plates located on the CLV US and Mobile Launcher (ML), respectively. The flight half of the plate with Quick Disconnect (QD) hardware will be integrated onto the CLV US, and the ground half plate with the mating QDs will be integrated onto the ML Umbilical arms. The current TTA is planned for a six-year period from FY07 through FY12 delivering flight and ground hardware to support Orion flights 3, 4 and 5; Integrated Stage Testing (IST) at MSFC, Green Run testing at Stennis Space Center (SSC) and Launch Equipment Test Facility (LETF) testing at KSC. Even though the multi-year TTA content is based on detailed cost and schedule, each fiscal year will be evaluated to verify or adjust the cost estimates based on the changing needs of the CLV US Project and will coincide with each year's Planning, Programming, Budgeting and Execution (PPBE) cycle. This TO will be evaluated and adjusted each fiscal year to reflect the changing needs of the TTA.

The MSFC CLV US Project Office controls the integrated budget, schedule and Level III requirements for the UP Project, which in turn will manage the Level IV and Level V requirements, budget and schedule. The scope of work crosses all the US Subsystem Elements to include Avionics, Main Propulsion System (MPS)

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[including Purge, Vent and Drain (PVD) and Hazardous Gases], Thrust Vector Control (TVC), Structures and Thermal. The scope of the TTA also includes support to Test, Logistics and Production activities.

The contractor shall provide engineering support to NASA KSC NE in its responsibility to design T-0 UP for the CLV US Project. The support will include working design details with MSFC during the DAC. The contractor will also identify and track risk with recommendations for appropriate mitigation strategies, and will support KSC and MSFC panels and review boards as required.

**B. TASKS**

**1.0** The contractor shall provide Mechanical Engineering support.

**1.1** The contractor shall support the design of the Flight and Ground Side of the Upper Stage Umbilical Plates (USUP).

**1.2** The contractor shall support the design of the Flight and Service Side of the UP for the ISTA.

**2.0** The contractor shall provide Prototype Hardware and Testing support.

**3.0** The contractor shall provide Electrical Engineering Support.

**4.0** The contractor shall provide Safety & Mission Assurance support.

**5.0** The contractor shall provide Systems Engineering support.

**6.0** The contractor shall provide Fluid Engineering support.

**7.0** The contractor shall provide Quality Engineering and Procurement support.

**7.1** The contractor shall support the procurement of cryogenics and pneumatics QDs.

**8.0** The contractor shall provide Project Management support.

**C. MILESTONES/DELIVERABLES**

**1.** – Support for Umbilical Flight and Ground Plates design details for the Final Layout Review (FLOR).

**Start Date :** 10/01/2008**End Date :** 12/31/2008

**Completed :** 12/10/2008

**2.** – Support for Umbilical Flight and Ground Plates design details for the KSC internal 45% Design Review.

~~6/30/2009~~ [RFP Rev B]

**Start Date :** 10/01/2008**End Date :** 12/31/2009

**3.** – Support for Umbilical Flight and Ground Plates design details for the KSC internal 90% Design Review.

~~6/01/2009~~ ~~9/30/2009~~ [RFP Rev B]

**Start Date :** 10/01/2009**End Date :** 09/30/2010

**4.** – Support for preliminary design of IST Umbilical Flight and Service Plates. ~~6/30/2009~~ [RFP Rev B]

**Start Date :** 10/01/2008**End Date :** 12/31/2009

**5.** – Support for identification, generation and documentation of IST Umbilical design requirements.

~~12/31/2008~~ [RFP Rev B]

**Start Date :** 10/01/2008**End Date :** 12/31/2009

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6. - Support for design, development and qualification testing of cryogenic / pneumatic / ECS QDs.  
**9/30/2009 [RFP Rev B]**  
**Start Date : 10/01/2008 End Date : 09/30/2010**

**D. STANDARDS OF PERFORMANCE (METRICS)**

1. - Task Order metrics will be collected in accordance with the USTDC Internal Surveillance Plan.

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