

### ABSTRACT AND BIOGRAPHY

#### **Ares I-X – Life on the Critical Path**

Ares I-X is the first new launch vehicle NASA has designed since the Space Shuttle and was the first major flight test of the Constellation Program. The hardware and software for the I-X system was supplied by 7 integrated Product Teams (IPT), 5 for the vehicle and 2 for the ground. The First Stage IPT was responsible for the first stage of the Ares I-X Flight Test Vehicle and included Shuttle heritage hardware such as a 4 segment Reusable Solid Rocket Motor (RSRB), the aft skirt, and the Flight Termination System. New FS developments included the frustum, forward skirt extension, forward skirt, and a fifth segment simulator.

This PM Challenge discussion will focus on the management challenges encountered and techniques implemented over the life of the project. Although there was a significant amount of heritage hardware transferred from the Shuttle program, the design, development, and fabrication of the forward assemblies, modification of the heritage hardware, and installation of over 350 DFI sensors provided various challenges. From early on in the life cycle of the I-X project, the development of the FS hardware remained on the critical path to launch. This constant schedule pressure presented additional challenges besides the day-to-day management of the effort. A secondary portion of this discussion will address a summary of the overall lessons learned over the life cycle of the project.

#### **Chris Calfee**

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Mr. Calfee is the Manager of the Ares I-X First Stage IPT. In this capacity, he was responsible for cost, schedule, and technical authority for all aspects of the Ares I-X First Stage IPT. He also serves as the Ares I First Stage Flight and Integrated Test Team Lead responsible for other major tests involving First Stage such as RSRM static test fires and the Integrated Ground Vibration Test.

Prior to this position, he held several positions in the Demonstration of Autonomous Rendezvous Technology (DART) flight demonstration project.

Before that, Mr. Calfee held increasingly responsible positions in Upper Stages Project Office including Integration Manager for two highly visible missions, the Advanced Communication Technology Satellite (ACTS) and Chandra X-Ray Telescope.