Upper Stage Engine (USE) Test Stand A-3 Tower Completed: A-3 test stand tower construction was completed on April 9 (Figure 1). A traditional "topping out" ceremony was held to commemorate the event. Before the last steel girder was hoisted, it was painted white and signed by all the workmen. After installation, a tree and flags were placed on the topmost beam (Figure 2). The A-3 tower structure is approximately 220 feet high and will be approximately 320 feet high upon completion, making it among one of the highest structures in Mississippi.

Figure 1: A-3 Tower

Figure 2: Tower Showing "Topping Out" Ceremony Detail

Deceleration Subsystem (DSS) Main Parachute Cluster Test: United Space Alliance (USA) completed the packing of the last of the three 150-foot diameter Ares I First Stage (FS) main parachutes that will be used in the main cluster drop test (CDT-1) next month at the Yuma Proving Grounds (YPG) in Yuma, AZ. Prior to packing, seven ribbons were removed from each of the main test parachutes to provide an increase in the overall parachute porosity. Increasing the porosity of the main parachutes was a result of drag data collected from the first two single main parachute drop tests. The main parachute packs, along with other test hardware, will be shipped to YPG for the drop test, which is currently scheduled for May 20.

Packaged Main Parachutes

Ares I-X FS Pyrotechnics Brief: All nose cap thruster/cartridge assemblies and the Forward Skirt Extension Separation Ring have been installed on the vehicle. Approximately half of the 116 Reefing Line Cutter qualification units have been functionally tested at Wyle Laboratories in Huntsville, AL. The remainder should be accomplished by April 17. All units have functioned properly, being actuated with a lanyard pull of 90 degrees off of axial centerline. Both the lanyard pull forces and the pyro delay times have all been well within tolerances for all units functioned. When the units fire, all units sever five plies of Kevlar webbing (four webs per flight plus one for margin). All units have cleanly severed the Kevlar webbing strips.

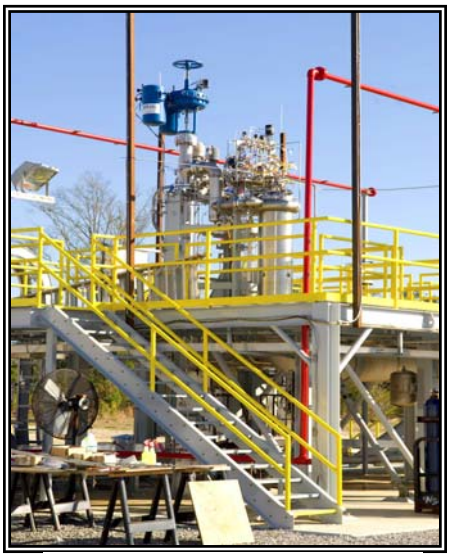
Nose Cap Thruster/Cartridge Assemblies Installed on the Vehicle

Forward Skirt Extension Separation Ring Installed on the Vehicle

Recent activities specific to the Elements include:

Upper Stage (US)

- ***US Logistics Support Infrastructure:*** A Value Stream Mapping (VSM) exercise was recently conducted at Michoud Assembly Facility (MAF) to evaluate the Shuttle External Tank (ET) Acceptance (DD250), Transfer (DD1149), and Certificate of Flight Readiness (COFR). By using VSM to evaluate the ET process, Ares I Upper Stage (US) personnel gained insight into developing an efficient US model using Lean Six Sigma techniques. Steps taken to examine processes included identifying the current ET state of operation, identifying assumptions for the US, and defining the ideal US flow. This event was the first of two VSM events to map the US flow and process details. A list of key US improvement ideas was developed and forward actions were assigned for future work. Event participants included Logistics, Manufacturing and Assembly (M&A), and Property personnel from Marshall Space Flight Center (MSFC) and MAF, as well as the Boeing US MAF Facilities Project Manager.



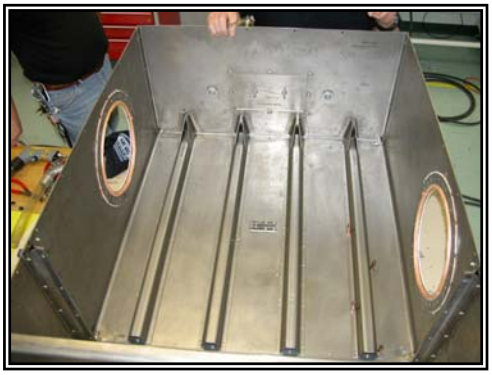
CSG "Can" Installed at E-2

Upper Stage Engine (USE)

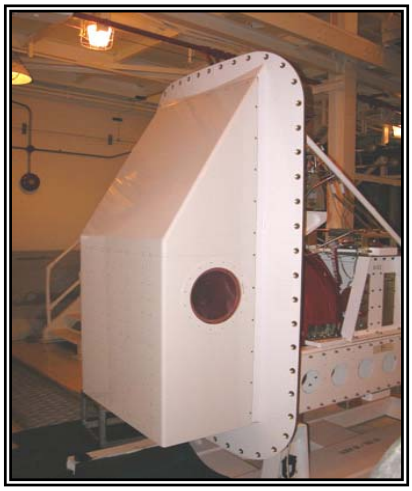
- ***Risk Mitigation Testing:*** Chemical Steam Generator (CSG) ignition tests were performed on April 8, at Test Stand E-2. Four tests, each of 5 seconds duration, demonstrated repeatable ignition of the CSG and successful performance of the test facility. Data analysis is underway. Additional ignition tests are scheduled for this week followed by full-steam tests beginning April 20. Four tests, each of 180 seconds duration, were performed on the Subscale Diffuser at Test Stand E-3. The objective was to measure acoustic levels. Data analysis is underway on these tests.

Flight and Integrated Test Office (FITO) and Ares I-X

- ***Ares I-X Roll Control System (RoCS) Element:*** Activities specific to the RoCS Element include:
  - As per Action Item #10 from the RoCS (Incremental) Acceptance Review, a Checkpoint presentation was made to the Ares I-X Control Board (XCB) to status ongoing testing and residual risks to installing the modified fairings and potential for removal. The XCB accepted closure of the action item and directed that fairing installation continue and plan for transfer of modules to the Vehicle Assembly Building (VAB) for installation in the Interstage. Final Engineering Change Orders (ECOs) were released against the RoCS installation and assembly drawings to support both the fairing modifications and Interstage installation, as well as capturing lessons learned from the fit checks conducted in February. Appropriate Kennedy Space Center (KSC) procedures had to undergo quick turnaround of review and approval based on these drawings.



Fairing Stiffener/Doubler Modifications



Fairing-Outer Mold Line Panel Match Drilling Initial Alignment

Project Integration (PI)

- ***Education Outreach:*** The Ares Projects outreach team presented the Ares and exploration stories to 285 teachers, students, and museum visitors recently. The team discussed the Ares Projects via the Digital Learning Network with 12 teachers enrolled in a workshop at Stennis Space Center on April 8. The team also staffed an Ares information table at the Sci-Quest science museum in Huntsville, AL, and discussed Ares with 75 visitors on April 8. Approximately 120 students at Lynn Fanning Elementary School in Huntsville, AL, learned about NASA careers and participated in a hands-on engineering lesson on April 9. Approximately 78 fourth grade students at Madison Crossroads Elementary School in Madison, AL, participated in a hands-on rocketry activity on April 10. These activities are representative of the variety of venues and technologies the outreach team is using to educate the public about exploration.

Ares Outreach Team Member Discusses NASA and Ares with Elementary School Students

The Ares Projects looks forward to the FS Cluster Drop Test in May.

…and as of this Ares Projects Weekly Summary, there are only 135 days until the first Ares I test flight, Ares I-X!!!