



The Ares I Upper Stage (US) Element welding team recently completed welding the first Manufacturing Demonstration Article (MDA) full-scale tank dome in Marshall Space Flight Center (MSFC) Building 4755. The MDA Liquid Hydrogen (LH2) tank dome was developed to define manufacturing processes for the Ares I US. The dome consists of eight gores and eight conventional friction stir welds. There were no issues in welding. Friction stir welding transforms the Aluminum-Lithium (Al-Li) alloy from a solid state into a “plastic-like” state, and then methodically stirs the materials together under pressure to form a welded joint. Subsequently, every weld will be non-destructively inspected by phased-array ultrasonic technique. The photo shows the dome being lifted from the robotic weld tool.



MDA full-scale LH2 tank dome in Building 4755



Propellant barge functional tests at A-3



The propellant barge dock construction is complete and barge functional tests are being performed on the Upper Stage Engine (USE) at Test Stand A-3 at Stennis Space Center (SSC).



Recent activities specific to the Elements include:

Upper Stage Engine (USE)

- **Test Stand A-1:** The A-1 Thrust Measurement System (TMS) has been shipped from the vendor, Force Measurement Systems in California, to SSC. It is scheduled for arrival on July 17.



A-1 TMS being lifted onto truck



A-1 TMS (covered) leaving vendor

Project Integration

- **University Student Launch Initiative (USLI)/Student Launch Initiative (SLI) Presentation:** The Ares Projects outreach team supported an Ares presentation to students and teachers/mentors involved in Marshall's USLI/SLI programs on July 9. These programs introduce high school and college students to the challenges of designing and flying rockets using a typical NASA design



process and helps to encourage and inspire them to seek careers in science, technology, engineering, and mathematics.

- **TeacherTube:** The Ares Projects outreach team uploaded all available Quarterly Progress Report videos and the 3-year progress video to TeacherTube FTP servers on July 9 for posting. TeacherTube is an online venue similar to YouTube but it is aimed specifically at educators. It is located at teachertube.com. This adds another resource where educators can readily find out the latest developments in the Ares Projects and incorporate NASA materials into their lesson plans.

The Ares Projects looks forward to the Development Motor (DM-1) static test at ATK in Promontory, Utah, in August.

...and as of this Ares Projects Weekly Summary, there are only 44 days until the first Ares I test flight, Ares I-X!!!