

LAGNIAPPE

John C. Stennis Space Center

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Stennis employees at the E-1 Test Stand help position an Aerojet AJ26 rocket engine in preparation for a series of “chilldown” tests. Stennis has partnered with Orbital Sciences Corporation to test the rocket engine for the company’s commercial cargo flights to the International Space Station.

AJ26 testing moves forward

Engineers at NASA’s John C. Stennis Space Center installed an Aerojet AJ26 rocket engine in mid-July for qualification testing. The test series is part of a partnership that highlights the space agency’s commitment to work with commercial companies to provide space transportation.

Stennis has partnered with Orbital Sciences Corporation to test the AJ26 engines that will power the first stage of the company’s Taurus® II space launch vehicle. Orbital is working with NASA to provide eight

commercial cargo transportation flights to the International Space Station through 2015.

Stennis operators have been modifying the E-1 stand since April 2009 to test the AJ26 engines for Orbital. Work has included construction of a 27-foot-deep flame deflector trench.

The latest step in the project involved delivery and installation of an AJ26 engine. Operators then began performing a series of “chilldown” tests, which involves running sub-cooled rocket propellants through

the engine, just as will occur during an actual “hotfire” ignition test.

The chilldown tests are used to verify proper temperature conditioning of the engine systems and the elapsed time required to properly chill the engine, and to measure the quantity of liquid oxygen required to perform the operation. Once the installed engine passes the chilldown and other qualification tests, it will be removed from the Stennis E-1 test facility. The first actual flight engine then will be delivered and installed for hotfire testing.

From the desk of

Mark Glorioso

Acting Director
Center Operations Directorate



Time is passing to see NASA's history displayed in front of Building 1200. I hope that as you drive by StenniSphere, you take note of the items exhibited there, specifically the rocket engines that unify us as a rocket propulsion center.

INFINITY – which will be a premier science center – is under construction next to the I-10 Hancock County Welcome Center, and the historical artifacts we have all become accustomed to in our workplace each day will be moved. No longer will we see those engines in front of StenniSphere, that help remind us what NASA's mission at Stennis Space Center was and is all about. Like Stennis Project Directorate Director Keith Brock mentioned in the June edition of the *Lagniappe*,



Visitors from Houston view the space shuttle main engine on display outside of the StenniSphere visitor center.

the Stennis team takes tremendous pride in achieving our piece of the mission – testing rocket engines.

We are building a new display in front of Building 1100 to maintain that sense of pride and to identify the NASA team as being centered on rocket propulsion. What better symbols of our successful past and hopeful future at John C. Stennis Space Center than the space shuttle main engine and the J-2 engine currently planned for exhibit? The new display also will include an assembly area for outdoor events, lighting, the stainless steel NASA spindle and the flags representing our federal city.

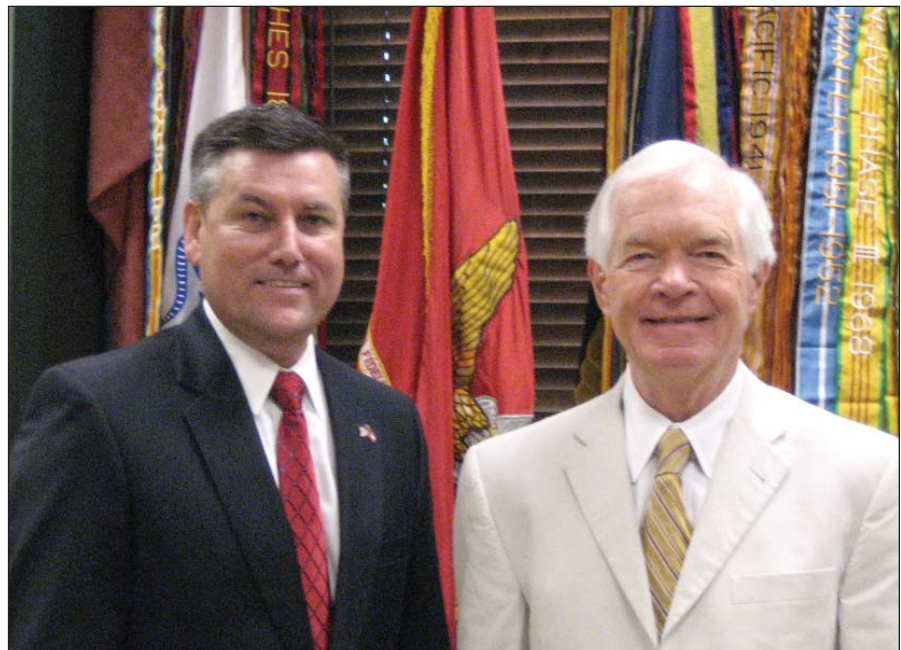
Take some time to reflect, go visit StenniSphere, take stock of the history – and as you see the construction of the new display begin, remember the past, focus on the present, and prepare for the future.

It is ours for the making!

Mark

Stennis director visits Capitol Hill in D.C.

Stennis Space Center Director Patrick Scheuermann (left) visited with U.S. Sen. Thad Cochran, R-Miss., during a July 28 visit to Washington, D.C. Scheuermann traveled to the nation's capital with leaders of other NASA centers for the annual "Center Directors on the Hill" visit. In addition to Cochran, Scheuermann visited with several members of the U.S. House and Senate from Louisiana and Mississippi to speak about NASA and Stennis Space Center activities and budgets. Stennis is NASA's premier rocket engine test facility and is responsible for all of the agency's rocket propulsion activities. All of the engines for manned Apollo and space shuttle flights have been tested at the facility.



FULFILLING NASA'S EXPLORATION MISSION

A-3 test cell installation under way



Work on the A-3 Test Stand at Stennis Space Center took milestone strides forward in July with delivery and installation of the first-stage steam ejector and parts of the test cell. Work on the stand began in 2007. When activated in 2012, it will allow operators to test rocket engines at simulated altitudes of 100,000 feet, a critical feature for next-generation engines that will take humans beyond low-Earth orbit once more. (Above photo) A section of the A-3 test cell is lifted onto the structural steel frame for installation. (Top right photo) A barge negotiates the Stennis locks for delivery of A-3 Test Stand components July 15. (Middle right photo) Workers prepare the first-stage steam ejector for lifting and installation onto the A-3 Test Stand frame. (Bottom right photo) A component of the A-3 test cell sits on the stand's structural steel frame after installation.

Upcoming launch schedule

STS-133
Shuttle Discovery
Target: Nov. 1

STS-134
Shuttle Endeavour
Target: Feb. 26, 2011

Orbital Sciences Corporation
Taurus rocket
Target: Nov. 22
Site: Vandenberg AFB

Stennis develops *Mass vs. Weight* curriculum

The education team at NASA's John C. Stennis Space Center has developed its first-ever teaching curriculum to help educate students about mass and weight.

The Mass vs. Weight curriculum offers a series of activities for grades five through eight and includes video of astronauts performing some of the experiments on the International Space Station. "Mass and weight are part of the national education curriculum standards, but students often have trouble understanding the difference between them," explained Katie Wallace, Education Office director at Stennis. "This curriculum addresses that need, and with the International Space Station, we really have a unique platform for demonstrating the two concepts."

Curricula are developed on a consistent basis by NASA centers. However, the Mass vs. Weight project is a first for Stennis and has involved the entire education team at the center, said Steve Culivan, an Aerospace Education Services Project specialist at Stennis. It is being developed through NASA's Teaching From Space program, which allows ISS crewmembers to perform curriculum-based activities in space to demonstrate basic principles of science,

technology, engineering, math and geography.

The Stennis curriculum is built on an experiment Culivan previously submitted for use by the Expedition 7 crew during their mission to the ISS in 2003.

Students will visit Stennis on Sept. 1 for the center's first-ever live downlink with the International Space Station and discuss mass and weight with Expedition 24 crewmembers aboard the ISS.

Crewmembers of the Expedition 20 mission in 2009 demonstrated activities for the Mass vs. Weight curriculum, performing the same exercises that students are asked to do on Earth. In one instance, ISS crewmembers suspend an empty

drink bag and a full drink bag from rubber bands, showing how the lack of the effects of gravity results in a different outcome than when the experiment is performed on Earth. The crewmembers then talk about the effect of gravity on mass and weight.

The ISS video and accompanying printed materials developed at Stennis are being reviewed by NASA's Center for Educational Technologies. Once finalized, the curriculum will be mass-produced for distribution to teachers. It also will be posted online through the NASA website.

"In that way, this curriculum literally will be used around the world," Culivan said. "And it can be used for years and years to come. That's exciting for everyone involved."

In addition, Stennis is scheduled to participate in a live downlink with the Expedition 24 crew on Sept. 1. Students from several area schools have been invited to the StenniSphere auditorium, where they will have an opportunity to ask Expedition 24 crewmembers questions about mass and weight.

The event marks the first-ever ISS downlink at Stennis and will be broadcast live on NASA television.



Antiques Roadshow films segment at Stennis museum

Associate producer Adam Monahan looks on as Antiques Roadshow Host Mark Walberg (left) discusses space toys with expert toy appraiser Noel Barrett in the StenniSphere visitor center and museum at Stennis Space Center. The Antiques Roadshow program shown on Public Broadcasting System stations across the nation visited Stennis on July 23. The visit was part of a weekend Biloxi stop for the program. Roadshow originated as a British program in 1979. The American PBS version of the program was launched in 1997. No air date for the space toy segment filmed at Stennis has been announced.

Employees receive ‘Yes-If’ honors



A pair of Stennis Space Center employees received “Yes-If” Awards during onsite presentations July 14. The “Yes-If” Award initiative was begun by Bryan O’Connor, safety and mission assurance chief at NASA Headquarters. The award is presented to NASA and contract employees who demonstrate a “Yes-If” philosophy instead of a “No-Because” approach in their work for the space agency. On July 14, “Yes-If” coins were presented

to Amy Rice, NASA safety and mission assurance engineer at Stennis (left photo), and Glen Parker, safety and mission assurance manager for the Jacobs Technology Facility Operating Services Contract group. Presenting the coins to both employees were Wilson Harkins III, safety and mission assurance deputy chief at NASA Headquarters (left) and Stennis Space Center Director Patrick Scheuermann.

Children enjoy Stennis visit

About 200 children of Stennis Space Center employees visited the facility for the annual Take Our Children to Work Day on July 27. Participants enjoyed a windshield tour of the rocket engine test site and various demonstrations and presentations on topics such as cryogenics, the Gulf of Mexico oil spill, computer safety and robotics. They also had an opportunity to take photos at the astronaut suit exhibit and participate in StenniSphere activities. The day began with a welcome from Stennis Deputy Director Rick Gilbrech.



NASA team sponsors STEM-Ulate event

Young visitors to Stennis Space Center prepare to launch “stomp rockets” during STEM-Ulate to Innovate activities at the facility July 13. The NASA Foundations of Influence, Relationships, Success and Teamwork (FIRST) Team sponsored STEM-Ulate to Innovate for more than 100 children ages 9-11. Children from area Boys & Girls Clubs participated in hands-on activities, presentations and demonstrations by professional engineers, all designed to promote the relevance of science, technology, engineering and mathematics (STEM). The NASA FIRST Team at Stennis includes Dawn Brooks (NASA Headquarters), Kay Doane (NASA Shared Services Center) and Van Ward (Stennis Space Center).

Director reflects on changes at Stennis



Note: John C. Stennis Space Center has played a pivotal role in the success of the nation's space program. This month, Lagniappe looks back on an important moment in the center's history.

Eleven years ago this month, late Stennis Space Center Director Roy S. Estess described the business climate of Stennis in his monthly *Lagniappe* column. In the column, Estess highlighted the “quantum change” in mission, activity and mode of operation that had occurred at Stennis in the previous five years.

“As we are consumed with the daily challenges of our jobs, it is important to remember how very far we have come in a short period of time,” Estess wrote. “Five years ago, our mission was basically to operate the base, to perform a stand-alone commercial remote sensing effort and to conduct scientific research. Marshall Space Flight Center in Huntsville, Ala., had responsibility for propulsion testing here. Today, we are responsible for all NASA rocket propulsion testing, not only here, but also at other centers. We are responsible for a Commercial Remote Sensing Program that is not an afterthought, but is at the heart of NASA's Earth science strategy. We are conducting scientific research in collaboration with the Navy to take full advantage of and to strengthen our unique multi-agency environment.

“As for scale of activity, five years ago we had four propulsion test positions, with one inactive; we had one test customer, the shuttle main engine,” Estess noted. “Today, we have 11 test positions, with none inactive and a waiting list; we have 16 test customers, 10 of whom are commercial. Five years ago, the commercial remote sensing budget was \$7.8 million. Today, it is \$25.1 million core with an additional \$23 million in initiatives. Today, we are involved



Roy Estess served as the fourth director at Stennis Space Center from 1989 until his retirement from NASA in 2002.

in numerous and significant agency initiatives. ...

“As for mode of operation, five years ago we were government-owned and contractor-operated to support the NASA mission,” Estess pointed out. “We still are, but now we also support significant commercial propulsion operations. A commercial company is currently investing tens of millions of dollars in facilities at Stennis. Others may follow.

“Five years ago, we had a staff of 212 civil servants. Today, our staff is approximately 260. No wonder we're so busy. I'm very proud of your efforts that have gotten us this far! Because of your continued hard work, we have a bright future in making significant contributions to both America's space program and the nation's well-being.”

@ Stennis

What are you doing to combat the record heat we have been experiencing this summer?

Editor's Note: @ Stennis highlights the views and opinions of Stennis Space Center employees.



“I'm trying to stay out of it whenever I can, as much as possible. And I try to wear lighter clothing, too.”

Janice Allen
Defense Contract Management Agency

“The best thing you can do – just try to stay in the air conditioning as much as possible.”

Brandon Craft
Naval Oceanographic Office



“I try to drink plenty of fluids and stay inside during the hottest part of the day. I'm also wearing lighter clothing and using sunscreen when outside.”

Sharlene Kodrin, NASA

“I'm trying to stay out of it, and I'm drinking plenty of water. That's the main thing.”

Thomas Matthews
Arcata Associates Inc.



Office of Diversity and Equal Opportunity

Women’s Equality Day set for Aug. 26

“Something which we think is impossible now is not impossible in another decade.”

(Constance Baker Motley, first black woman in U.S. to become a federal judge)

August 26 is the commemoration of women being granted universal suffrage in the United States. The date was selected to commemorate the 1920 passage of the 19th Amendment to the Constitution, granting women the right to vote.

Women’s Equality Day calls attention to women’s continuing efforts toward full equality. Workplaces, libraries, organizations and public facilities now participate with Women’s Equality Day programs, displays, video showings, or other activities.

The Stennis Diversity Council and the Naval Research Laboratory have joined in hosting this year’s event. There will be two speakers presenting on Aug. 26, in the Logtown Conference room in Building 1100 from 11:30 a.m. to 12:30 p.m. All are encouraged to come and enjoy these dynamic speakers.

If you would like to test your knowledge on women’s equality, see how you do on the following questions:

- 1. In what year did Congresswoman Bella Abzug introduce legislation for Women’s Equality Day?
2. The 19th Amendment to the U.S. Constitution is known as the ...
3. Women have been voting for at least 96 years in Kansas and Oregon. What other state has allowed women to vote for 96 years?
4. How many years did it take women to win the right to vote in the U.S.?
5. Women who worked for the right to vote were called ...
6. The term “suffragist” is derived from ...

Answers: 1) 1971 2) Susan B. Anthony Amendment 3) Arizona 4) 72 5) Suffragist 6) A voting tablet in ancient times

Hail & Farewell
NASA welcomes the following:
Jessica Thompson Student trainee/office support Office of the Director
Nicole Ladner Student trainee/office support Office of the Director

NASA Stennis Space Center Shooting For A Star
VPP Voluntary Protection Programs An OSHA Cooperative Program
Stennis sets sights on Star status
We’re in the final months of preparation for NASA Stennis Space Center to become a Star site.
Want to know where to find the information you need to know about safety? Check out the Stennis Safety and Mission Assurance website at osma.ssc.nasa.gov for safety policies and other safety information.



NASA focuses on safety

Stennis Space Center Director Patrick Scheuermann speaks with NASA employees in one of two Voluntary Protection Programs sessions held July 13. Stennis held the sessions to focus on the VPP safety initiative under way at the facility. Stennis is seeking Star status through the initiative, launched by the Occupational Safety and Health Administration as a proactive model to recognize organizations and their employees for excellence in safety and health.

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Students close summer with town hall session

Students in summer internship and research groups at Stennis Space Center participated in a July 29 town hall session featuring NASA Administrator Charles Bolden (right). During the town hall gathering broadcast at Stennis and other NASA centers, students such as Alex Grashoff from Louisiana State University (left) were able to have questions regarding NASA and its work answered by Bolden. Each year, Stennis hosts students from across the country to participate in various research and internship programs.



Astro Camp looks at space's 'cool places'



Students from across the area participated in a series of Astro Camp sessions this summer at Stennis Space Center, engaging in activities designed to help them explore outer space's "cool places." In addition to participating in rocket launches, campers also examined how NASA satellites and observatories are used to learn more about the universe. Each year, Astro Camp sessions seek to inspire kids to learn about science, technology, engineering and mathematics through an array of fun activities.