

National Aeronautics and Space Administration



LAGNIAPPE

John C. Stennis Space Center

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Look! Up in the sky!



Space shuttle Endeavour embarked on the first leg of its final flight Sept. 19, departing Kennedy Space Center in Florida and making early-morning flyover visits to Stennis Space Center in Mississippi and nearby Michoud Assembly Facility in Louisiana. The shuttle flew atop the 747 Shuttle Carrier Aircraft, headed west, where it will go on display at the California Science Center in Los Angeles. The flight crew coordinated with the Federal Aviation Administration to conduct low-level flyovers at about 1,500 feet above Stennis and Michoud. Once in Los Angeles, the shuttle will be removed from the ferrying aircraft and spend a few at a United Airlines hangar undergoing preparations for transport and display. Endeavour then will travel through city streets on a 12-mile journey from the airport to the science center to go on display, beginning Oct. 30. (See pages 9 and 10 for additional photo coverage)

*“I have no doubt that in 2013,
the NASA Stennis team will once again prove
that we are truly capable of great achievements.”*



From the desk of
James Bevis

Chief Financial Officer, Office of the Chief Financial Officer

Greetings again from the budget and finance world! December marks my 10th anniversary as NASA chief financial officer (CFO) at Stennis Space Center.

In retrospect, our organization has played a key role in several notable accomplishments, such as successful deployment of a new agency financial system, establishment of the NASA Shared Services Center and transition of ownership/operations of the National Center for Critical Information Processing and Storage and of the Mississippi Army Ammunition Plant, not to mention surviving hurricanes Katrina and Isaac!

We have made a number of key personnel changes within our organization this year. I established a new deputy CFO position and appointed Rena Perwien in that capacity. Deborah Norton was selected to replace her as deputy CFO for resources, and we recently backfilled some vacancies with new hires.

Additionally, we assigned many of our personnel to new work assignments as we strive to expand employee competencies and provide them with new challenges. In order to improve productivity and reduce employee stress, our organization now has implemented teleworking for eligible employees. Thirty percent of our employees participate in the initiative on a regular basis.

On the budget front, we are still in the midst of fiscal year (FY) 2012 closeout. Many thanks to our folks in

resources, finance and the Office of Procurement for all their hard work!

Also, we have been working diligently with NASA Headquarters to secure initial funding for refurbishment of the B-2 Test Stand. Demolition activities already have begun, and we look forward to awarding the first construction work package on the Multiple Award Construction Contract in October.

Looking forward to FY 2013, the agency once again faces the challenges of a potential six-month continuing resolution and significant budget cuts in order to address the \$16 trillion federal deficit. Consequently, Stennis will again be challenged to find innovative ways to become more cost effective in our management of test facilities and the federal city. But as other federal and state agencies face similar pressures, the potential for expanding our tenant base in light of these challenges remains strong.

Rest assured that our leadership has a keen eye on the future. And the Stennis team is again prepared to meet the demands of future testing and an ever-evolving business environment. I have no doubt that in 2013, the NASA Stennis team will once again prove that we are truly capable of great achievements.

All the best!

Jim Bevis

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FULFILLING NASA'S EXPLORATION MISSION

Testing of J-2X engine ongoing at Stennis

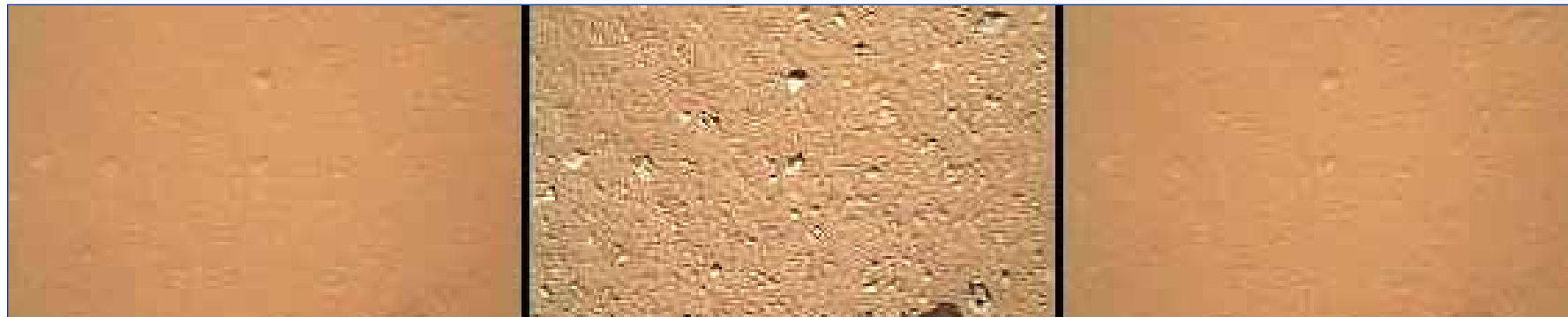
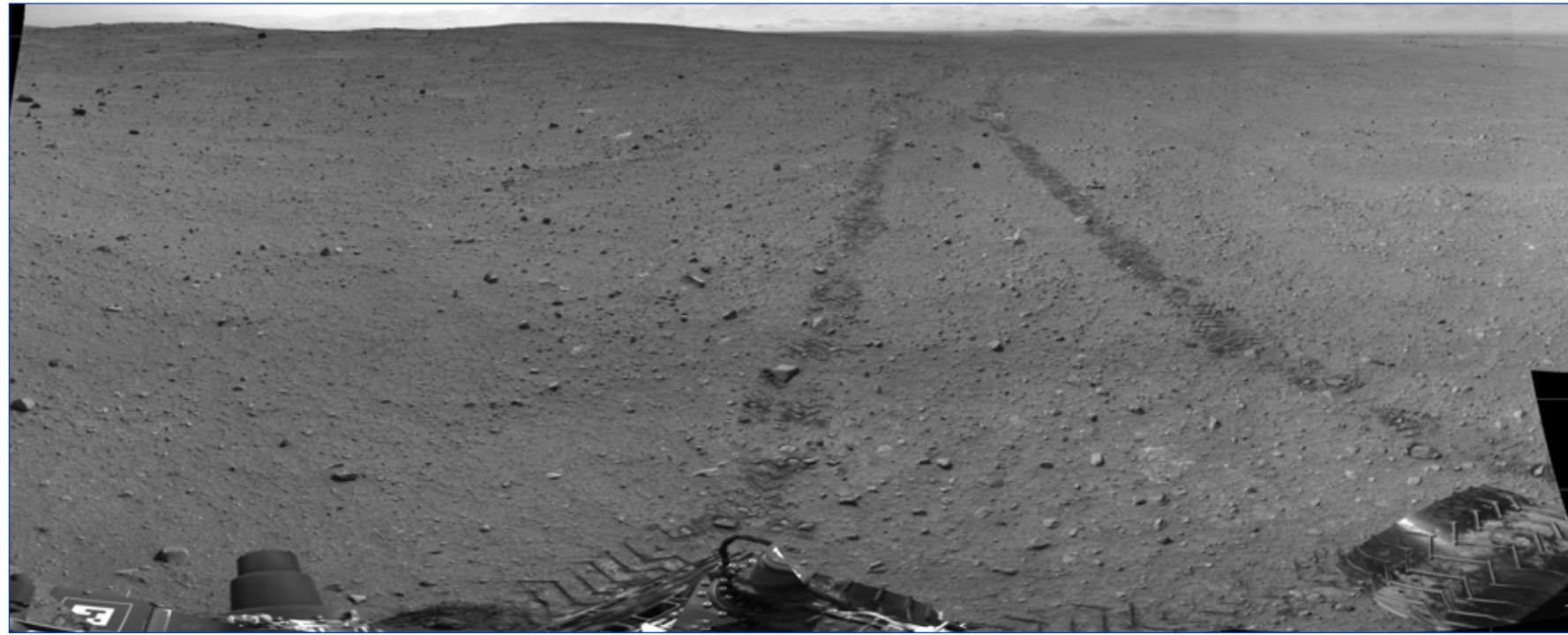
NASA engineers continued testing the next-generation J-2X rocket engine at Stennis Space Center with a 250-second test on Sept. 7. The test was the first conducted after the arrival of Hurricane Isaac forced closure of the Stennis facility for three days in late August. Engineers collected critical data on performance of the engine, which is being built by Pratt & Whitney Rocketdyne for NASA's Marshall Space Flight Center in Huntsville, Ala. The Sept. 7 test was conducted on the A-2 Test Stand at Stennis. The facility's B-1/B-2 Test Stand can be seen in the left background. The J-2X engine is being developed to power the upper stage of NASA's new two-stage Space Launch System.



NASA continues testing J-2X powerpack assembly at Stennis

NASA conducted a long-duration test of the J-2X powerpack, 1,261 seconds total, on the A-1 Test Stand at Stennis Space Center on Aug. 16, marking another step in development of the next-generation rocket engine. The powerpack is a system of components on the top portion of the J-2X engine, including the gas generator, oxygen and fuel turbopumps, and related ducts and valves. On the full J-2X engine, the powerpack system feeds the thrust chamber system, which produces engine thrust. The Aug. 16 test is part of a series of firings on the J-2X powerpack.

FULFILLING NASA'S EXPLORATION MISSION



Curiosity rover on Mars

After landing on Mars on Aug. 6, NASA's Curiosity rover has been checking out its equipment and preparing for its 23-month mission to examine the Red Planet.

(Top photo) This scene shows the location where NASA Mars rover Curiosity arrived on the 29th Martian day, or sol, of the rover's mission on Mars (Sept. 4, 2012). It is a mosaic of images taken by Curiosity's Navigation Camera following a drive of 100 feet. Tracks from the drive are visible.

(Middle photo) The reclosable dust cover on Curiosity's Mars Hand Lens Imager (MAHLI) was opened for the first time Sept. 8, enabling MAHLI to take the center image of this set. The other two images presented here for comparison were taken before the cover was opened (left) and after the cover was closed again (right). All three images were taken from the same position: about 5 feet (1.5 meters) above the ground, facing down. Comparison of these cover-closed and cover-open images shows that haziness in previous MAHLI images was due to a thin film of dust that settled on the dust cover during Curiosity's landing.

(Right photo) The penny in this image is part of a calibration target for the MAHLI on the Curiosity rover. The MAHLI camera on the rover took this and other images of the calibration target Sept. 9, at a distance of 2 inches. The penny is a nod to geologists' tradition of placing a coin or other object of known scale as a size reference in close-up photographs of rocks, and it gives the public a familiar object for perceiving size easily when it will be viewed by MAHLI on Mars. The specific coin is a 1909 "VDB" penny, the first year Lincoln pennies were minted and the centennial of Abraham Lincoln's birth. The VDB refers to the initials of the coin's designer, Victor D. Brenner. The calibration target for MAHLI also includes a "Joe the Martian" character, color references, a metric bar graphic and a stair-step pattern for depth calibration. The Joe the Martian character appeared regularly in a children's science periodical, "Red Planet Connection," in the 1990s.



The INFINITY at NASA Stennis Space Center facility hosted visiting children and adults Aug. 25 with activities celebrating the space agency's Mars Science Laboratory mission to the Red Planet. A car-sized Curiosity rover successfully landed on Mars on Aug. 6, to begin a 23-month investigation of the planet. During the next two years, Curiosity will investigate whether conditions have been favorable for microbial life and for preserving clues in the rocks about possible past life. On Aug. 25, INFINITY visitors enjoyed designing and constructing rovers, sampling astronaut ice cream, signing Curiosity good luck banners, interacting with Stennis mascot Orbie the Astronaut and viewing 3-D images from Mars.

Female engineers at Stennis make history conducting simultaneous engine tests

As Nyla Trumbach conducted her first test of the J-2X powerpack assembly Aug. 16 on the A-1 Test Stand at Stennis Space Center, she heard a distinctive rumble from across the facility canal.

Trumbach knew that meant a test of the Aerojet AJ26 rocket engine was under way on the E-1 Test Stand at Stennis. What she did not know was that the AJ26 test also was being conducted by a female engineer, Rosa Obregon.

It was a day of firsts for Stennis rocket engine test teams: the first J-2X engine test at Stennis conducted by a female engineer, the first two large-engine tests conducted simultaneously by Stennis teams and the first instance of two female engineers conducting tests on the same day.



Rosa Obregon

“In the rocket testing business, any large engine test is its own piece of history,” explained Randy Galloway, director of the Stennis Engineering & Test Directorate. “When you think about running two large engines simultaneously within a few hundred yards of each other, it is really worthy of celebrating as a historical moment. When you throw in the fact that both test conductors were young women, it becomes really special.

“It wouldn’t have been possible without two outstanding test teams and great folks operating the test support infrastructure that supported both tests flawlessly,” Galloway continued. “It shows what Stennis facilities and people are capable of.”

Trumbach, a native and resident of Poplarville, is a test operations engineer with Lockheed Martin at Stennis. She earned an engineering degree from the University of Mississippi and began work at Stennis Space Center in 2004 with a U.S. Navy contractor. She joined the Lockheed Martin test operations team in 2007, following in the footsteps of her grandfather, who worked at NASA to support the Space Shuttle Program. Trumbach used to watch shuttle launches from her grandparents’ house in Cocoa Beach, Fla.

At Stennis, she works with the J-2X powerpack test team. The next-generation J-2X engine is being developed by Pratt & Whitney Rocketdyne for use on NASA’s Space Launch System. The powerpack is a key component of the engine. “Specifically, it is the engine minus the thrust chamber assembly,” Trumbach explained. “Since the powerpack is not a complete engine, we are able to push it to its limits to provide valuable data to the design team.”

Obregon joined the NASA team at Stennis in 2004 after studying aerospace engineering at the Massachusetts Institute of Technology. The Corpus Christi, Texas, native grew up fascinated with space and now works as a test operations engineer at Stennis. “My parents tell me I used to say when I was little that I wanted to work for NASA,” she said. “I could not say no to NASA. How many people can say they push the (rocket engine) start button?”

Obregon, who lives in Gulfport, works on the AJ26 engine team, testing engines that will be used to power Orbital Sciences Corporation’s Antares launch vehicle. Two AJ26 engines will power the first stage of the Antares vehicle, with each producing more than 300,000 pounds of thrust. Orbital has partnered with NASA to provide commercial cargo missions to the International Space Station.

Both Stennis engineers credit family as their biggest influences, especially in terms of encouraging the young women to work hard, get a good education and pursue their dreams, even if they led to the male-dominated work of rocket engine testing. For Obregon, the message she received from her father was clear: gender was not an issue. Girls could do anything.

For Trumbach, the lesson was much the same: to meet challenges head-on and with confidence. “I believe the only barriers I faced were those I imposed on myself,” she said. “Most people didn’t care that I was a female as long as I could do the work.”

That “can-do” attitude has been instrumental in helping Trumbach negotiate the demands of being a test engineer and a mother. “I had to find a way to be the best mother I could be and continue to do my job to the best of my ability,” she said. “I



Nyla Trumbach

have learned to balance my home and work life.”

The same approach has helped Obregon deal with the unexpected situations that invariably arise in testing complex rocket engines. Things do not always go as planned, leaving engineers to determine what happened and why, a process that is critical to ensuring mission success for NASA.

“The true test is bouncing back, learning from the experience, and being able to perform in the hot seat again,” Obregon said. “There is no simulator that can ever fully prepare you for that situation. The primary reason we test engines is to find potential weaknesses on the ground from where they can be learned and thus help improve safety for the crew and vehicle.”

Stennis team machines Morpheus nozzle

Machinists at Stennis Space Center delivered a key component last month for the space agency's Project Morpheus effort to build a new prototype lander that could one day evolve to carry cargo safely to the moon, asteroids or Mars surfaces.

Team members in the Jacobs Technology Facility Operating Services Contract Group machine shop completed production of a new nozzle for the liquid-methane, liquid-oxygen engine that will be used to power the new Project Morpheus lander currently in production. The component was shipped to Johnson Space Center in Houston in late August.

Production of the nozzle required negotiating tight time constraints and working with a particularly strong and hard nickel-chromium alloy, Inconel 718. "We're known for working with all kinds of exotic metals, and we're good at it," said Gary Taylor, a propulsion test project engineer in the Stennis Project Directorate.

The Project Morpheus effort bears witness to that fact.

Machine shop personnel spent 80-100 hours to program the lathe machine and produce the finished component. Completing the project in the midst of an already busy work schedule was a testament to the

skill developed by the Stennis team through the years.

"We've machined a lot of this metal now," explained Dale Green, Jacobs FOSC machine shop lead. "You have to go slow and take your time with it. We struggled through a big learning process when we started working with it. It takes time to build up knowledge of the metal and the capabilities of your machine and the



Members of the Stennis Space Center machine shop display the engine nozzle produced for NASA's Project Morpheus prototype lander. Jacobs Technology Facility Operating Services Contract Group employees involved with the project were (l to r) Dale Green, Scott Fleming, Arie Bell, Scott Curet, Dennis Necaise, Tim Smith and Glen Beech. Team member Jake McKinley is not shown.

speeds and feeds needed."

Taylor praised the shop team for handling the schedule and skill challenges associated with the project. "This was a great partnership effort," he said. "Johnson faced a schedule constraint and turned to Stennis for help because they knew this was something we were highly capable of doing. We were able to meet the time demands and bring the needed skills to the table to produce the nozzle and help continue the work of the Morpheus program."

NASA is designing the Morpheus lander using advanced technologies, including a "non-toxic" propulsion

system and autonomous landing/hazard detection features. An original Morpheus vehicle was destroyed during a test at Kennedy Space Center in August, however, this new vehicle was already being built at that time. NASA hopes to begin testing the new lander in 2013.

Development of autonomous hazard detection capabilities is critical to enable access to landing

sites previously considered too hazardous to risk robotic or human missions. The propulsion system is sized to carry a variety of payloads to the moon or other celestial bodies. These could include robots, small rovers or even small laboratories to run automated tests.

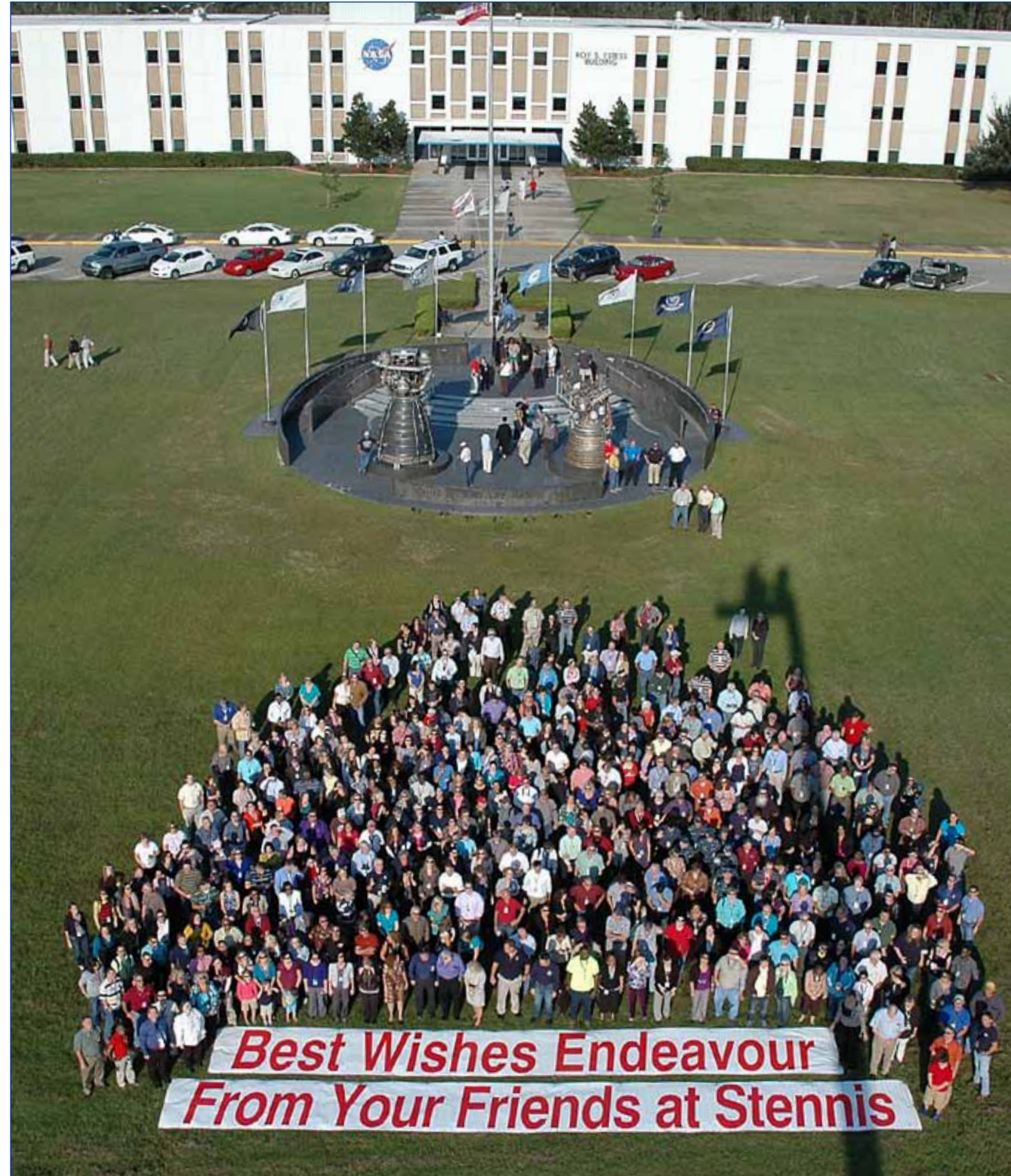
Production of the engine nozzle was yet another

avenue of Stennis involvement in Project Morpheus. Stennis engineers completed a series of tests on the E-3 Test Stand on a new Morpheus engine this summer. It marked the first time the new higher-performance version of the engine (tagged HD5) was tested on its own.

The engine is scheduled to return to Stennis next month for another series of tests. This time, it will include a familiar component – the nozzle produced by the Stennis shop.

"It's exciting to play such a firsthand role in an ongoing space exploration project," Taylor said. "We're proud to be part of it."

It's a bird! It's a plane! It's space shuttle Endeavour on its final flight!



Stennis Space Center employees turned out in force to cheer space shuttle Endeavour as it flew low over the rocket engine test facility early on the morning of Sept. 19. The shuttle is headed to Los Angeles, where it will be on display at the California Science Center. Endeavour was the fifth, and last, space shuttle to be built. It launched on its maiden mission, STS-49, in May 1992. Endeavour flew 25 missions during the next 19 years, concluding its fleet service with the STS-134 mission in May 2011. During its 25 missions, Endeavour spent 299 days in space, orbited Earth 4,671 times, carried 173 crew members into space and traveled a total of 122,883,151 miles. Stennis supported the shuttle fleet throughout the 30 years of operation, testing all of the main engines used to power 135 missions. On Sept. 19, Stennis employees applauded and cheered as the retired shuttle passed low overhead. In addition to those gathered on the lawn in front of the Roy S. Estess Building, many congregated on building rooftops and on facility test stands to view the flyover, including the A-3 stand shown left and the A-1 stand shown right.



Stennis launches 2012 CFC

Stennis Space Center launched the 2012 Combined Federal Campaign effort Sept. 11 with announcement of a \$196,300 giving goal. Following the kickoff ceremony, employees were able to visit exhibits of service organizations supported with CFC gifts and learn about the work they perform. The CFC is the largest annual workplace charity effort in the nation. Each year, its gifts support organizations providing health and human service benefits throughout the world. In 2011, Stennis Space Center employees contributed \$221,000 through the campaign. The total was \$31,000 more than given in 2010 and marked the largest dollar increase from one year to the next in the southern Mississippi region.

(Top photo) Stennis Director Patrick Scheuermann, Deputy Director Rick Gilbrech and Associate Director Ken Human listen to a United Way spokesperson during CFC kickoff activities.

(Bottom photo) Diane Tyson and Sandreal Turner of the Jacobs Technology Facility Operating Services Contract Group visit the Habitat for Humanity booth during the CFC Kickoff.



National Research Council visits Stennis

Four members of the National Research Council visited Stennis Space Center on Aug. 22, touring test stands and facilities, and holding roundtable discussions with Stennis leaders. In addition to viewing the J-2X engine on the A-2 Test Stand (right photo), the NRC members learned about test projects in the B and E test complexes. They also toured the Pratt & Whitney Rocketdyne Engine Assembly Facility and the National Center for Critical Information Processing and Storage. The NRC mission is to improve government decision making and public policy, increase public understanding, and promote the acquisition and dissemination of knowledge in matters involving science, engineering, technology and health.



Stennis concludes 2012 Feds Feed Families effort



Stennis Space Center employees concluded their 2012 Feds Feed Families effort at the end of August with collection of 6,701 pounds of nonperishable food items. NASA Office of Human Capital Manager Dorsie Jones (second from right) joined office employees (l to r) Apolonia Acker, Cecile Saltzman, Cabrina Bell and Jeanie Frederick during pickup of the final food items. Stennis food items are contributed to the Hancock County Food Pantry in Bay St. Louis and the Mt. Olive Soup Kitchen in Slidell, La. The Stennis effort is part of the national Fourth Annual Feds Feed Families campaign. In three years, federal employees have donated more than 8 million pounds of nonperishable food items to local food banks. The Stennis Office of Human Capital extended special thanks for the 2012 effort to contributing employees in NASA, ASRC Research and Technology Solutions and the Government Printing Office.

NASA in the News

Mars Orbiter data reveals carbon dioxide snowfall

NASA's Mars Reconnaissance Orbiter data have given scientists the clearest evidence yet of carbon dioxide snowfalls on Mars. This reveals the only known example of carbon dioxide snow falling anywhere in our solar system. Frozen carbon dioxide, better known as "dry ice," requires temperatures of about minus 193 F, which is much colder than needed for freezing water. Carbon dioxide snow reminds scientists that although some parts of Mars may look quite Earth-like, the Red Planet is very different. The report is being published in the *Journal of Geophysical Research*.

NASA releases free educational Web game

Want to try your hand at landing an inflatable spacecraft? All you need is a smart phone, a computer or a tablet. NASA has released a new educational computer Web game based on its Hypersonic Inflatable Aerodynamic Decelerator (HIAD) project. The game can be played on the Internet and Apple and Android mobile devices. The application can be downloaded free from those mobile device stores and online at: www.nasa.gov/hiad. HIAD is an innovative inflatable spacecraft technology NASA is developing to allow giant cones of inner tubes stacked together to transport cargo to other planets or bring cargo back from the International Space Station. A prototype HIAD was launched July 23. The successful flight test demonstrated that lightweight, yet strong, inflatable structures may become a practical way to help explore space.

For the latest NASA news releases, visit online: www.nasa.gov/news/releases/latest/index.html.

Stennis hosts Safety & Health Day



Employees at NASA's John C. Stennis Space Center participated in 2012 Safety & Health Day activities Aug. 21. Various organizations provided interactive exhibits and information on a range of safety and health issues. During large group presentations, Brad Gardner also spoke about losing part of his right arm to an industrial accident in 2003 and what it has taught him about preventing accidents. Gardner served 22 years in the U.S. Air Force and has a background in safety management.

Neil Armstrong ... 1930 - 2012



Stennis Space Center employees placed a wreath in memory of astronaut Neil Armstrong, the first human to set foot on the surface of the moon, during a Sept. 13 ceremony. Armstrong died Aug. 25 at age 82. He set foot on the moon on July 20, 1969, and spent about two-and-a-half hours exploring the surface with fellow astronaut Buzz Aldrin. In addition to service as an astronaut, Armstrong also was an aerospace engineer, U.S. Navy pilot, test pilot and university professor.

(Right photo) Stennis Deputy Director Rick Gilbrech (r) and NASA Procurement Management Support Division Chief Steve Taylor observe a moment of silence after placing the memorial wreath.

(Top photo) Aldrin took this photo of Armstrong after the two astronauts re-entered the lunar module following their exploration of the lunar surface on the Apollo 11 mission.



Shuttle external tank heads to Stennis

Note: For more than 50 years, NASA's John C. Stennis Space Center has played a pivotal role in the success of the nation's space program. This month's Lagniappe highlights a moment in the history of the south Mississippi rocket engine test center.

Thirty-five years ago this month, the first space shuttle external tank rolled off the assembly line on Sept. 9, 1977, at Michoud Assembly Facility in New Orleans.

The tank was transported to the National Space Technology Laboratories (now John C. Stennis Space Center), where it was joined to a shuttle orbiter aft fuselage and a cluster of three main engines to form the shuttle's Main Propulsion Test Article (MPTA). Marshall Space Flight Center in Huntsville, Ala. was responsible for developing the external tank, which contained two compartments – one for liquid hydrogen and one for liquid oxygen – and a plumbing system that supplied propellants to the main engines of the space shuttle orbiter.



A crowd watches the first space shuttle external tank roll off the assembly line at Michoud Assembly Facility in New Orleans.

Over the course of the next three years, the MPTA was tested 18 times, beginning with a brief ignition test on April 21, 1978. By February 1981, more than one hour of firing time had been accumulated on the test version of the space shuttle's main propulsion system.

Six of the tests successfully conducted at the site were programmed to meet or exceed the 520-second duration necessary to put a shuttle into orbit. The final test of the system, which took place Jan. 17, 1981, was deemed a "complete success" by Bob Bush, space shuttle resident manager at NSTL.

NASA Associate Administrator for Space Transportation Systems John Yardley concurred, praising the test team effort. "They've done a magnificent job," he said.

In what many characterize as the facility's "finest hour," the NSTL team had proven the space shuttle's MPTA was ready for flight.

Interesting facts about the space shuttle external tank:

- The tank, at 154 feet, was taller than the Statue of Liberty (151 feet) and was the structural backbone of the shuttle vehicle.
- There were approximately 480,000 separate parts in each external tank.
- The external tank held 535,000 gallons of propellants – 390,000 gallons of liquid hydrogen and 145,000 gallons of liquid oxygen – which fueled space shuttle main engines through 17-inch-diameter feedlines.
- The external tank was covered with spray-on foam insulation that kept the liquid hydrogen at minus 423 F and liquid oxygen at minus 297 F, even in the hot sun.
- When fully loaded, the cold propellant caused the tank to shrink up to 7 inches.
- The skin of the external tank was less than 0.25 inches thick, yet held more than 1.5 million pounds of propellant.
- The external tank was the only major expendable shuttle element.
- The external tank weighed 1.6 million pounds at space shuttle liftoff.
- During flight, when the shuttle main engines cut off at an altitude of about 370,000 feet, or about 70 miles above the Atlantic Ocean, the tank separated from the orbiter. It would continue to climb to 686,000 feet, then fall, breaking apart in the atmosphere, and splashing into the ocean in a specified footprint. Its disintegration was carefully engineered, holding together until it reached the lower atmosphere so the debris footprint was small.

Office of Diversity and Equal Opportunity

Celebrate rich Hispanic American heritage

*Life is a song – sing it. Life is a game – play it.
Life is a challenge – meet it. Life is a dream – realize it.
Life is a sacrifice – offer it. Life is love – enjoy it.*

Sai Baba

In observance of Hispanic American Heritage Month, celebrated each year from Sept. 15 through Oct. 15, the Office of Diversity and Equal Opportunity (ODEO) at Stennis Space Center encourages everyone to join in celebrating the rich heritage and cultural diversity that Hispanic Americans have contributed to this country. This year's theme is "Diversity United, Building America's Future Today."

As of April 1, 2010, the estimated Hispanic population of the United States was 50.5 million, making people of Hispanic origin the nation's largest ethnic or race minority. Hispanics constituted 16.3 percent of the nation's total population.

According to the 2010 U.S. Census, Hispanics of Mexican, Puerto Rican and Cuban descent remain the nation's three largest Hispanic country-of-origin groups. However, while the relative position of these groups has remained unchanged since 2000, the next four Hispanic subgroups in this country – Salvadorans, Dominicans, Guatemalans and Colombians – grew faster during the last decade.

Traditionally, the Hispanic family is a close-knit group and the most important social unit. The term *familia* usually goes beyond the nuclear family. The Hispanic "family unit" includes not only parents and children but also extended family. In most Hispanic families, the father is the head of the family, and the mother is responsible for the home. Individuals within a family have a moral responsibility to aid other members of the family experiencing financial problems, unemployment, poor health conditions and other life issues.

Hispanic family ties are very strong: when someone travels to another town or city to study or for a short visit (e.g., vacation, business, medical reasons), staying with relatives or even with friends of relatives is a common practice. Families often gather to celebrate holidays, birthdays, baptisms, first communions, graduations and weddings. Hispanic families instill in their children the importance of honor, good manners and respect for authority and the elderly. Preserving the Spanish language within the family is a common practice in most Hispanic homes.

Hispanics usually give great importance to and place great value on looks and appearance as a sense of honor, dignity and pride. Formal attire is commonly worn by Hispanics to church, parties, social gatherings and work. Tennis shoes and jeans, however, are becoming more popular among Hispanic women, particularly in non-formal settings. Hispanics tend to be more relaxed and flexible about time and punctuality than others. For instance, people who are invited for an 8 a.m. event may not begin to arrive until 8:30 a.m. or later. Within the Hispanic community, not being on time is a socially acceptable behavior.

In the Hispanic world, religion has traditionally played a significant role in daily activity. More than 90 percent of the Spanish-speaking world is Roman Catholic. In recent years, other faith denominations have experienced growth within the U.S. Hispanic community. The church influences family life and community affairs, giving spiritual meaning to the Hispanic culture. Each local community celebrates its patron saint's day with greater importance and ceremony than individuals do for personal birthdays.

Hispanic countries celebrate the more popular international holidays, notably Easter, Christmas Eve, Christmas, New Year's Day and the Three Kings' Day. In addition, each country celebrates its El Dia de Independencia. The term *fiesta nacional* refers to an official national holiday; *las fiestas* refer to festivals – local, regional, or national – that may be held only one day or may last several days. Most holidays are centered on or have their origins in religion.

ODEO will be hosting a Lunch-and-Learn in observance of Hispanic American Heritage Month. Please join us for this educational opportunity.

Hail & Farewell

NASA bids farewell to the following:

- | | |
|------------------------|---|
| Aaron Brooks | Human Resources Student Trainee
Office of Human Capital |
| Charles Johnson | AST, Propulsion System & Technologies
Engineering & Test Directorate |

And welcomes the following:

- | | |
|------------------------|--|
| Lester Langford | AST, Experimental Electrical
Equipment and Techniques
Engineering & Test Directorate |
|------------------------|--|

Stennis hosts Mississippi community outreach events

Stennis Space Center visited three Mississippi communities Sept. 11-13, offering interactive and space-related exhibits and presentations to visitors in Grenada, Oxford and Tupelo.

(Top photo) Young visitors to the Powerhouse Community and Arts Center in Oxford enjoy a hands-on educational activity during the NASA Night event Sept. 11.

(Center photo) Stennis Office of External Affairs Manager Pam Covington speaks to a student assembly at Grenada Upper Elementary School during outreach activities Sept. 12.

(Bottom photo) NASA employee Michele Beisler helps a young visitor prepare to launch her balloon rocket during NASA Night activities in Oxford.



Stennis DEVELOP interns begin work on fall projects

Seven DEVELOP students began work on a pair of projects with launch of their fall term at Stennis Space Center on Sept. 10.

The fall term students will spend the next several weeks at Stennis working with mentors on projects involving the Louisiana wetlands, and air quality in California and the Appalachian Mountains area.

The NASA DEVELOP program hosts student interns at Stennis and 10 other locations across the country during spring, summer and fall terms. The training and development internship program offers students an opportunity to learn about NASA Earth Science and the practical applications of Earth observations.

Each term, student interns are given the opportunity to work on unique environmental research projects using NASA Earth observation data. An interesting and fun component of the research efforts is creation of project videos. Each project team creates a five-minute video highlighting its research and posts the video on the Earthzine online news and educational website.

Project videos are judged during a three-week period by a panel of volunteers. Winners are selected based on various criteria, including the quality and quantity of comments posted for each video and the caliber of the research conducted.

Since its inception in spring 2011, Earthzine has hosted five virtual poster sessions. Stennis Space Center DEVELOP teams won third runner-up in the summer 2011 term, first place in the fall 2011 term and first place in the summer 2012 term.