

## ‘Going strong’

Five decades and counting, Stennis well on track



**Goal – \$145,000**  
**To-date – \$88,282**  
**(60.9% of goal) \*as of 12/13/16**

I am not sure how many of you remember 1968 – and I know better than to ask for a show of hands from those who do. No need for anyone to lie about age and end up on the “naughty” list this close to the holidays. Ark! If you do remember the year, you know how unsettled it was. The assassinations of Martin Luther King Jr. and Robert Kennedy. Race riots. Political upheaval. Protests against the Vietnam War.

However, the year ended on a different note, thanks to NASA’s Apollo 8 mission in late December. The mission captivated the world as it provided a number of firsts, including the first time humans left low-Earth orbit to visit another celestial body, the first whole planet view of Earth from space and the first human witness of the iconic Earthrise as the astronauts orbited from the far side of the moon. A photo of that breathtaking Earthrise became one of the most famous images not only of 1968 but of all time.

The mission also is remembered for the Christmas Eve broadcast made as the astronauts neared completion of their lunar orbits. Reading the first verses of the book of Genesis, the astronauts ended with good wishes to everyone “on the good Earth,” which had

earlier been seen as never before. It was the most-watched television broadcast ever at the time.

I think of that mission every December season – and maybe you do as well. Something you may not think about, however, is that the mission and all of its firsts were possible because of Stennis Space Center, which tested the rocket stages used by Apollo 8.

The same can be said about a lot of space missions and “firsts.” The humans who landed on the moon flew on rocket stages tested right here. The International Space Station was built during shuttle missions powered by engines tested here. Those wondrous Hubble Space Telescope images are possible because of Stennis-powered missions to launch and repair the device.

The list could go on, and it will go on as NASA prepares to fly deeper into space than ever on – you guessed it – rocket stages and engines tested right here. So, I think the Apollo 8 astronauts would not mind much if we borrowed their poignant sentiment to offer best wishes of this holiday season to everyone on the good Earth and to all the good down-to-Earth people at Stennis Space Center. An eggnog toast to each one!



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## FULFILLING NASA'S EXPLORATION MISSION

## Focus on 'more mission' fuels changes at Stennis

Most businesses and strategic endeavors follow a simple maxim – “The more money devoted to core mission, the better.” NASA is no exception, and recent changes at Stennis Space Center are evidence of that commitment.

As part of a new consolidated operations contract, NASA is merging warehouse and key shop functions across two of its centers – Stennis and nearby Michoud Assembly Facility in eastern New Orleans. The moves are designed to increase efficiency and provide more funds that can be directed to the agency's core space mission.

“It's an approach and philosophy that seeks to create a new balance with the workforce and operations, making us a little leaner and a little smarter in how we allocate funds,” explained Thom Rich, deputy chief of the Design and Construction Project Management Division of the Stennis Center Operations Directorate. “It's all part of us trying to do more mission.”

The moves come under the new Synergy-Achieving Consolidated Operations and Maintenance (SACOM) contract awarded by NASA a little more than a year ago. SACOM calls for streamlining operations at Stennis and Michoud, eliminating the duplication of services that the two sites can share in a coordinated fashion.

As part of the effort, decisions were made to combine warehouse operations, as well as to merge fabrication, welding, machining and component cleaning capabilities for the two sites. Some of those functions have begun to move to Michoud.

Primary warehouse operations already have shifted to Michoud. All warehouse items and operations eventually will be housed at the New Orleans site. The same is true for the other key shop functions; all will be located at Michoud with basic maintenance support activities remaining in place at Stennis.

The moves are possible thanks to the considerable square footage and range of services available at Michoud. “The idea is that since we're so close together, let's use this great

The moves require both NASA and SACOM contractor Syncom Space Services to plan carefully so tools and equipment can be moved between the two NASA sites as needed. The idea is to follow more of a “just in time” process in which materials and services are provided only as they are needed, increasing efficiency and reducing costs.

Such a shift in approach and logistics takes time and must overcome the natural resistance that accompanies major change. Care also is being

exercised to accomplish the changes without any disruption of ongoing work at either site, Rich said.

Benefits already are being realized. In preparing to move the large equipment items for relocation of the machining capabilities, Stennis officials were able to identify excess machines and hardware elsewhere in NASA that could be transferred.

Various computerized machining tools were found and reassigned, enabling Stennis to receive about \$1.5 million worth of new equipment for an expected cost of about \$70,000 in transfer expenses.

Reductions in maintenance costs already are evident as well, and there are more benefits to come, Rich said. “This is all part of an effort to keep Stennis on mission, moving ahead and viable, to focus the center for the next 25 years,” he said. “For me, that will be one of the real benefits, when those of us here now will be able to sit back and see our kids and grandkids still coming to work at Stennis Space Center because we're still here and we're still playing a key role in supporting our space program.”

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***This is all part of an effort to keep Stennis on mission, moving ahead and viable.***

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**Thom Rich**

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asset,” Rich said, “They have a lot of space at Michoud and a lot of things they can do to support our work here.”

In addition to that action, remaining shops and vehicle maintenance operations at Stennis will move on site to newer existing buildings in the former Army Ammunition Plant complex. This will allow Stennis to shutter and demolish three 50-year-old buildings (2201, 2204 and 2205), freeing up considerable maintenance funds now dedicated to their upkeep.

“Older buildings are real maintenance hogs, so we stand to gain a lot of dollars by these actions,” Rich said. “That kind of money going toward the mission is a real benefit to us.”

## NASA in the News



Late astronaut John Glenn gives a “thumbs up” to boiled crawfish during a 2003 visit to Stennis Space Center. One of NASA’s original Mercury 7 astronauts, Glenn became the first American to orbit Earth during the

Friendship 7 mission in 1962. Later, he served as a U.S. senator from 1974 to 1999. At age 77 in 1998, he became the oldest person to fly in space, aboard space shuttle Discovery on the STS-95 mission.

## NASA remembers historic astronaut John Glenn

NASA Administrator Charles Bolden and Stennis Space Center Director Rick Gilbrech issued statements following the death of former astronaut John Glenn on Dec. 8.

Bolden said, in part: “We mourn this tremendous loss for our nation and the world. As one of NASA’s original Mercury 7 astronauts, Glenn’s riveting flight aboard Friendship 7 on Feb. 20, 1962, united our nation, launched America to the forefront of the space race, and secured for him a unique place in the annals of history. ...

“In 1998, at the age of 77, he became the oldest human to venture into space as a crew member on the Discovery space shuttle – once again advancing our understanding of living and working in space, ...” Bolden continued. “Glenn’s extraordinary courage, intellect, patriotism and humanity were the hallmarks of a life of greatness. ...

“Sen. Glenn’s legacy is one of risk and accomplishment, of history created and duty to country carried out under

great pressure with the whole world watching,” Bolden added. “The entire NASA family will be forever grateful for his outstanding service, commitment and friendship.”

In his statement, Gilbrech said: “John Glenn was a true American hero in every sense of the word. He exemplified the character, strength and courage of those early space pioneers. His selflessness in promoting NASA’s human spaceflight program after his Mercury flight on Friendship 7 set us on the path of success we have enjoyed for the last five decades of space exploration.

“He visited Stennis in 2003 and was a kind, humble and unassuming hero who talked to my young son as if he were his own grandchild,” Gilbrech said. “He was a national treasure and will be missed. Godspeed John Glenn.”

Bolden’s statement is online at: <http://go.usa.gov/x8p2b>.  
Gilbrech’s statement is at: <http://go.usa.gov/x8d29>.

## FULFILLING NASA'S EXPLORATION MISSION

# 'Going strong' – Stennis completes another year of doing what it does best

With all due respect to rock-and-roller Sammy Hagar and his driving issues, NASA's Stennis Space Center is doing just fine, driving strongly ahead at 55.

The nation's largest rocket engine test center marked its 55th year in 2016 by continuing to do what it does best – help power space exploration dreams.

"Stennis is such a unique site," Stennis Director Rick Gilbrech said. "The work done here is essential to this nation's space program."

The center has performed such work from the very beginning, when it tested the Saturn V rocket stages that carried humans to the moon. The engines that powered 135 space shuttle missions were also tested at Stennis. In fact, in addition to celebrating the 55th year since construction of the site was announced in 1961, last spring, Stennis marked the 50th anniversary of the very first engine test at Stennis – on April 23, 1966.

Five decades later, on the very same test stands, Stennis operators are testing RS-25 engines for NASA's new Space Launch System (SLS), which will carry humans into the next great space exploration era. It soon will begin testing SLS rocket stages as well. In fact, major renovation work to prepare the B-2 Test Stand for stage testing has been completed. If all holds to schedule, the stand will be ready to receive an SLS flight stage for testing by the end of 2017.

After 55 years and hundreds upon hundreds of hotfire tests, one might think such activity is a routine matter for the center. Far from it. Rocket engine and stage testing is a careful and exact science, and Stennis relies on years of cumulative experience and expertise to meet the unique objectives of each test.

In 2016, the stakes for doing so were as high as possible. In addition to running RS-25 rocket engines through a variety of developmental tests, Stennis operators performed a full-duration test of an actual RS-25 flight engine. The 500-second test of engine No. 2059 on March 10 was deemed a success. The next time the engine is fired, it will be lifting the SLS rocket off on Expedition Mission-2, which will carry four astronauts beyond low-Earth orbit for the first time since 1972.

"There have been many milestone tests performed here at Stennis," Gilbrech said. "However, that first test of an SLS flight engine was really special. It moved us that much closer to deep space and a journey to Mars. And

how fitting that it came in our 55th year and a full 50 years after the first test here."

Of course, in those five-plus decades since that first test of a Saturn V second stage prototype, Stennis has grown into more than could have been imagined.

Not only does Stennis test NASA engines and stages, but it has expanded its test facilities to include commercial testing for a range of companies, including SpaceX and Aerojet Rocketdyne.

Stennis also has built itself into a federal city, housing dozens of companies, federal and state entities, and research and education organizations. It continues to look to the future as well, implementing an ambitious consolidated operating and maintenance contract between Stennis and nearby Michoud Assembly Facility in the past year. The Synergy-Achieving Consolidated Operations and Maintenance (SACOM) contract is already viewed as a prototype of stream-lined operations and cost-saving efficiency.

Approval also was granted in 2016 to expand the restricted airspace surrounding Stennis, which will enable the testing of the massive SLS rocket stages. The expanded air space also will benefit the U.S. Navy in its various operations at Stennis.

Along the way, Stennis has built an impressive record for technological innovation and development. For instance, the development of a revolutionary, high-speed, high dynamic range camera by a Stennis engineer drew widespread interest and attention during the past year. Among other things, the High Dynamic Range Stereo X (HiDyRS-X) camera will enable NASA engineers to view and analyze rocket engine plumes with greater detail and precision.

It all contributes to a remarkable story that Stennis leaders continue to share throughout the Gulf Coast region – through school partnerships, community programs and full-scale outreach efforts, such as the NASA in NOLA Week activities conducted during the 2016 New Orleans ESSENCE Festival.

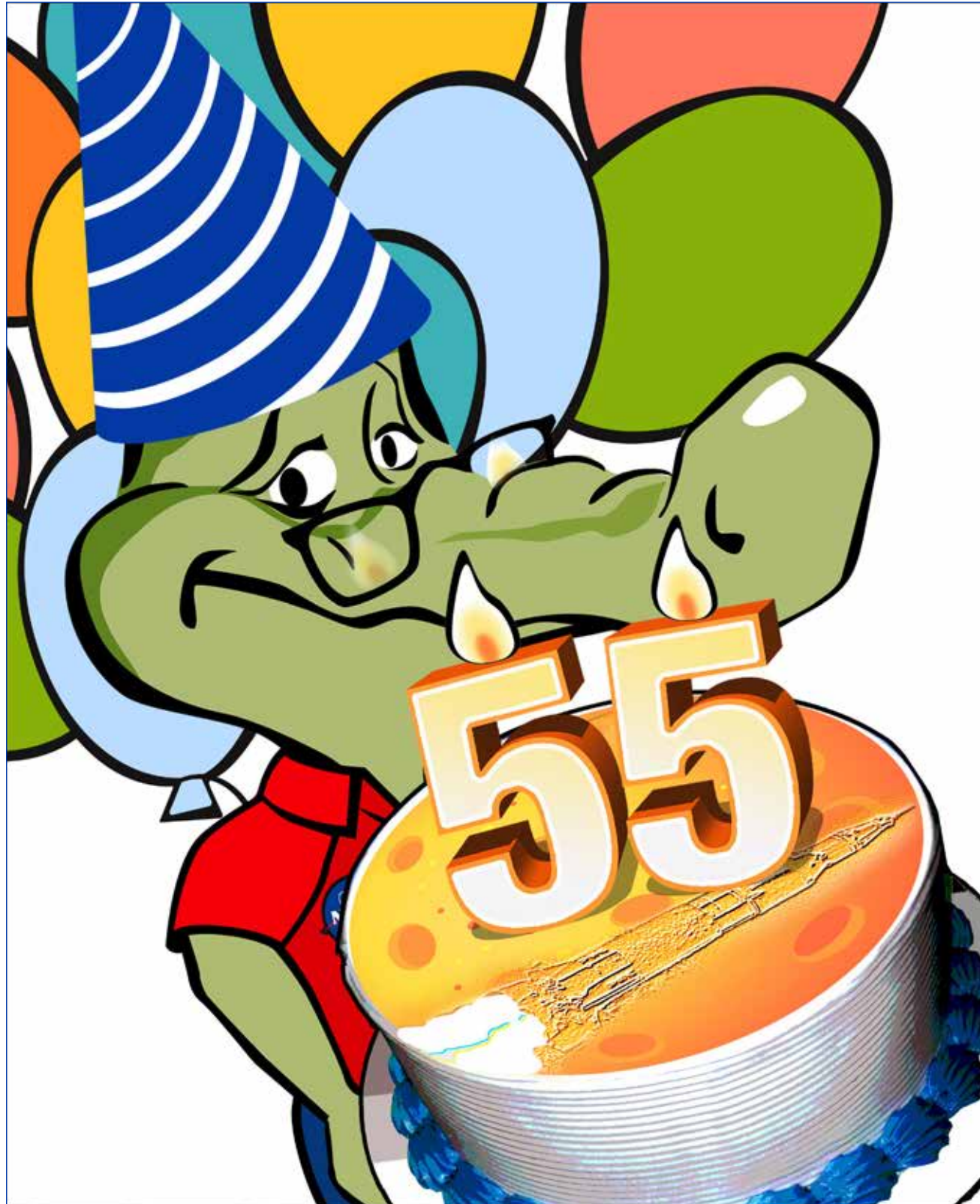
"Stennis is such a vital and diverse community," Gilbrech emphasized. "It is an economic engine for the area and a committed Gulf Coast neighbor. We continue to do cutting-edge work and provide critical support to our space program. It has been that way for more than 50 years, and there is no end in sight. We're still going strong, still moving ahead, still building the future of space exploration for our children, our nation and the world."



(Top photo) NASA conducts a successful 500-second test of the first RS-25 flight engine on the A-1 Test Stand at Stennis Space Center. The next time engine No. 2059 fires for that length of time, it will be carrying astronauts on their first deep-space mission in more than 45 years.

(Right photo) Aerojet Rocketdyne conducts an RS-68 engine test on the B-1 Test Stand on April 19, 2016, almost 50 years to the day that NASA conducted its first-ever test at Stennis on April 23, 1966. Stennis employees were invited to view the RS-68 test to commemorate the anniversary.





(Top left photo) Stennis mascot Gator commemorates the 55th anniversary of the south Mississippi test site. NASA announced plans to build the center on Oct. 25, 1961, five months to the day after then-President John F. Kennedy challenged the nation to send humans to the moon.

(Top right photos) The upper image shows the exhaust of a Space Launch System Qualification Motor 2 test (QM-2) on June 28, 2016, without using NASA's new High Dynamic Range Stereo X (HiDyRS-X) camera. The lower image shows the same exhaust, using the revolutionary camera developed by a Stennis Space Center engineer. The camera

is being hailed as game-changing technology for viewing and analyzing propulsion test exhaust plumes. It stands as one of the growing number of technological innovations being developed by NASA and Stennis engineers to benefit not only space exploration but other industries.

(Bottom right photo) Stennis Space Center and Aerojet Rocketdyne conduct one of a series of AR1 preburner tests on Cell 2 of the E-1 Test Stand in June 2016. The tests successfully verified key preburner injector design parameters for the company's AR1 engine, being developed to end use of Russian engines for national security space launches.

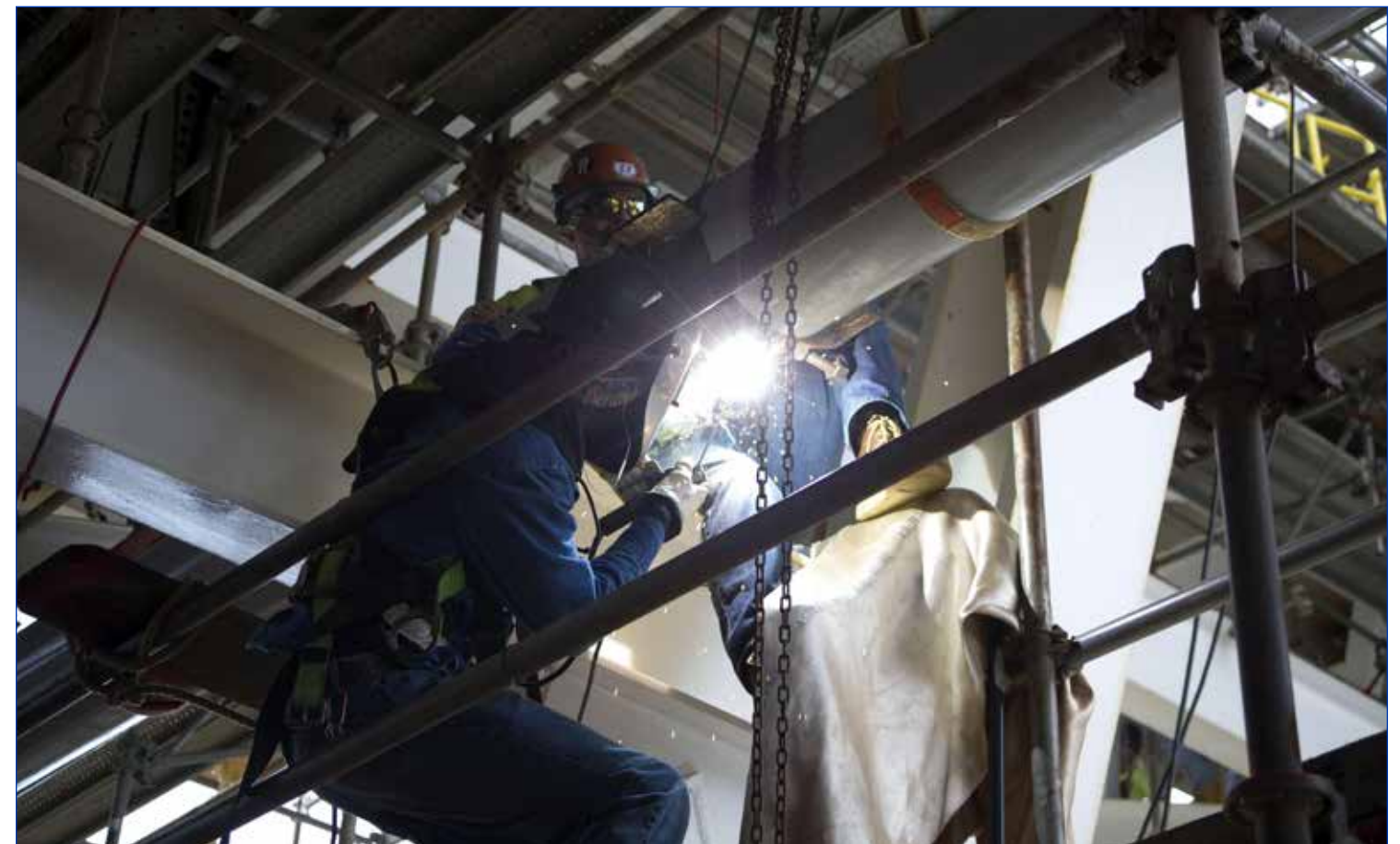




(Left photo) Major restoration and buildout activities were completed in 2016 to prepare the B-2 Test Stand at Stennis for testing the first Space Launch System (SLS) core stage prior to its maiden flight. More than 1 million pounds of steel were added to the stand to extend the framework that will hold the stage for testing.

(Top photo) The Saturn V S-IC-15 rocket stage originally scheduled to power the Apollo 19 mission arrives at Stennis on June 16, 2016, for transport to INFINITY Science Center. The stage originally traveled to Stennis for testing in 1970. After its Apollo mission was canceled, it remained at Michoud Assembly Facility in New Orleans until its transfer to the INFINITY viewing site.

(Right photo) B-2 Test Stand work crews at Stennis install new piping needed to accommodate core stage testing of NASA's new Space Launch System. (SLS).





(Left photo) NASA Administrator Charles Bolden and astronaut Victor Glover join in a discussion of space exploration efforts during a New Orleans ESSENCE Festival presentation on July 2, 2016. The presentation was one of numerous space-related outreach exhibits and activities (right photo) sponsored by NASA during the annual festival.

(Bottom left photo) NASA officials and contractor representatives, as well as social and traditional media members, view the Aug. 18 test of RS-25 engine No. 0528 on the A-1 Test Stand at Stennis during a guest event.

(Bottom right photo) Stennis Space Center Director Rick Gilbrech updates area leaders during an annual community briefing session at INFINITY Science Center on Feb. 18, 2016. Gilbrech emphasized the key role Stennis plays in supporting the American space program, cited the positive economic impact Stennis has in its area and assured leaders that the site is committed to growing its missions.







An entrance sign from 1988 reflects the new name of NASA's rocket engine and rocket stage test site in south Mississippi.

## A rocket engine test site by any other name ...

*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 provides a glimpse into the history of NASA and the south Mississippi rocket engine test center.*

In December 1961, Mississippi Test Operations became the official name of what is now the John C. Stennis Space Center. At the time, there was some confusion as to what to call the rocket testing facility.

Before the first trees were cleared for construction, two names were used interchangeably when referring to the new facility: Mississippi Test Operations (MTO) and Mississippi Test Facility (MTF). Workers who were present at the site referred to it as MTO, but engineers and architects at Marshall Space Flight Center called it MTF.

This caused some confusion, so administrators at Marshall wrote to NASA Associate Administrator Robert C. Seamans to put an official name to the facility. On Dec. 18, 1961, Seamans replied with a letter naming the installation "NASA Mississippi Test Operations."

However, even with the official word from NASA Headquarters, both earlier names were used between Marshall and the personnel assigned to MTO. In fact, the names would be used interchangeably for another four years until July 1965, when Mississippi Test Facility became the official designation.

MTF was the name for almost 10 more years, until it was changed to National Space Technology Laboratories. It originally was proposed to be the Gulf Coast Space Technology Center by Mississippi state Sen. Martin Smith in a decree seeking "fuller use" of MTF. Site Director Jackson Balch and staff members for U.S. Sen. John Stennis of Mississippi came up with the National Space Technology Laboratories name, and it was approved by NASA and announced in June 1974.

Fourteen years later in 1988, by executive order of then-Pres. Ronald Reagan, NSTL became the John C. Stennis Space Center. The name memorializes the late Mississippi senator and the hard work he and his colleagues did to ensure the way to space went through south Mississippi.

## Stennis marks 2016 holiday season with annual tree lighting

NASA employees kicked off the holiday season with the annual Holiday Tree Lighting Ceremony on Nov. 28 in the main lobby of the Roy S. Estess Building. In addition to opening comments by Center Director Rick Gilbrech and the ceremonial tree lighting, employees sang carols and enjoyed holiday treats.



## Office of Diversity and Equal Opportunity

# How is your area leveraging diversity and inclusion?

*This article was submitted by Belfield Collymore, Contract Specialist, Stennis Office of Procurement.*

*We are all different, which is great because we are all unique.*

*Without diversity, life would be very boring.*

**Catherine Pulsifer**

When first approached to write this article, I immediately turned to the Internet to do research. I discovered a substantial amount of scholarly articles on the subject, most focused on defining, creating and sustaining diversity and inclusion in an organization. Simply stated, diversity means all the ways we differ, while inclusion involves bringing together and harnessing these diverse forces and resources in a way that is beneficial. According to an article titled *Moving from Diversity to Inclusion* by T. Hudson Jordan, inclusion puts the concept and practice of diversity into action by creating an environment of involvement, respect and connection – where the richness of ideas, backgrounds and perspectives are harnessed to create business value.

Many organizations struggle and do not realize the full potential of a diverse and inclusive workforce. Since the Stennis Office of Procurement interacts with diverse customers and a broad commercial industry base to obtain needed supplies and services, I asked, “What actions is the office taking to bring together and harness these diverse forces to increase Stennis’ buying power?” I interviewed several professionals within the office, and the following responses demonstrate how they include the diverse Stennis workforce and commercial industry partners in the acquisition process to deliver optimal business solutions.

### Management

- Foster an inclusive acquisition workplace where diversity and individual differences are valued and leveraged to achieve Stennis’ mission.
- Enable individuals by developing their ability to perform and contribute to the mission by providing ongoing feedback and opportunities to learn.
- Recognize that diversity and inclusion is about taking action and not just keeping a scorecard.
- When possible, consider the Schedule A Hiring Authority for people with disabilities. (The Office of Procurement recently hired its second Schedule A employee.)

### Division Chiefs

- Include individuals from the requiring activity as well as representatives from various Stennis organizations – such as finance, legal, safety and the technical community – in acquisition planning.
- Engage industry during market research to obtain input into requirements and processes. Take industry input into consideration as requirements are finalized.
- Recognize that procurement efforts require a mutual respect for individual backgrounds, talents and opinions.
- Train individuals as if you are training your replacement. This requires inclusion in order to be successful.

### Small Business Specialist

- Promote utilization of small businesses.
- Participate in Industry Day events focused on outreach to small business socioeconomic categories.
- Participate in roundtable discussions with small businesses to obtain input on how to improve processes to achieve maximum competition.

### Contracting Officers

- Promote site visits to allow potential offerors to better understand Stennis requirements.
- Value the input of all individuals involved in the source selection process.
- Hold pre-construction meetings with contractors. Invite representatives from various Stennis organizations to provide presentations and detailed briefs of how Stennis operates within that organization’s parameters.

### Contract Specialists

- Participate in the acquisition process by seeking advice from individuals with diverse backgrounds/experiences.
- Establish and maintain communication with the requiring activity and the contractor.

These answers show how the Office of Procurement puts diversity and inclusion into its actions. What actions is your area taking to foster an inclusive work culture where uniqueness of beliefs, backgrounds, talents, capabilities and ways of living are welcomed and leveraged for learning and for informing your mission-related decisions?

## Hail & Farewell

NASA welcomes the following:

Desiree Davis

Security Specialist

Center Operations Directorate



# Faces of Stennis

Each month, Lagniappe will feature employees at Stennis Space Center whose work enables the center to fulfill its mission as the nation's largest rocket engine test center. This month's employee is highlighted on the following page.



## Paul Farr

Paul Farr did not happen to find his way to Stennis; the center found him. A native of Florida, Farr was serving as operations manager for the Naval Special Warfare Command in Coronado, Calif., when contacted by NASA. In his naval role, Farr worked to ensure the readiness of live-fire ranges and training facilities for Navy Seals and Special Warfare Combatant-craft crews throughout the United States. At Stennis, his expertise was needed as the center sought to expand the restricted airspace surrounding it. Farr began work at the center in 2015, near the outset of the effort to expand the restricted airspace. The request was of interest to NASA, for testing large rocket engines and stages, and to the U.S. Navy, which has a sizable presence at Stennis and conducts riverine training on adjacent waterways. In addition to aiding the airspace expansion effort, Farr also was

asked to establish a range program for Stennis. Given the assignment, it is easy to see why Farr cites May 29, 2016, as the date of his proudest accomplishment at the site; that was the day the final airspace expansion was officially published. Since then, Farr has focused on establishing policy, procedures, infrastructure and training requirements needed for use of the expanded restricted airspace. A resident of Mandeville, Louisiana, Farr has enjoyed his time at Stennis. Given his focus on airspace, he particularly likes the view from atop the Stennis test stands. One of his earliest space-related memories is the Challenger explosion in 1986, and the impression it left on him even at five years old. Years later, he is excited at the direction of NASA as it adapts to the commercialization of space and the proliferation of unmanned systems within the National Airspace System.

