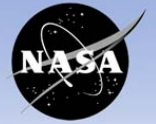




National Aeronautics and Space Administration



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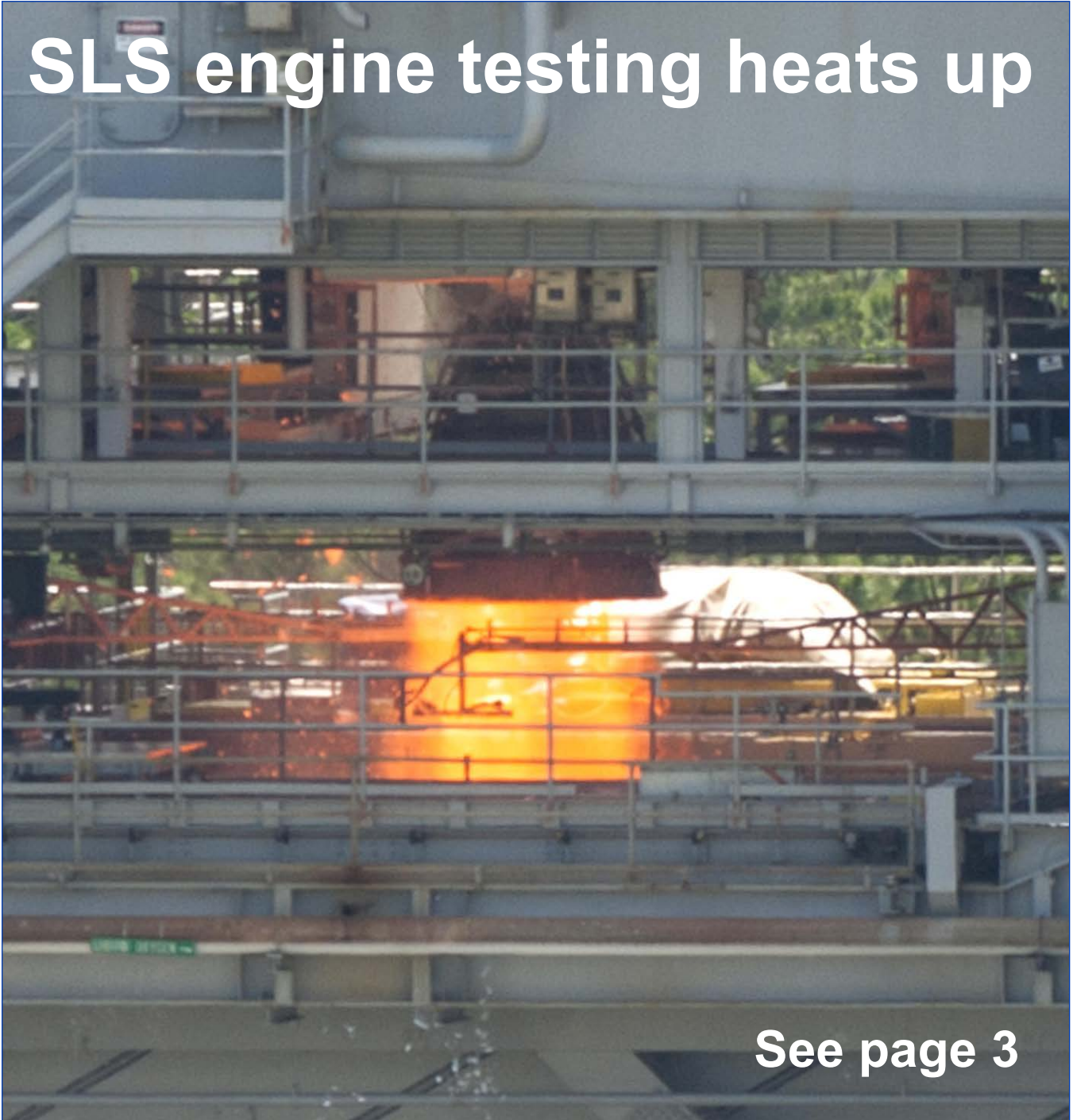
John C. Stennis Space Center

Volume 13 Issue 6

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June 2017

SLS engine testing heats up



See page 3

2017 Hurricane Season Guide appears at end of this issue

I was in New Orleans the other weekend, visiting with some folk, when talk turned to what everyone did for a living. When I told about working at Stennis Space Center, just about everyone had heard of it but few knew just what goes on here.

A few minutes later, not only did they all know what Stennis is about, but they all also wanted to know how they could come see the place for themselves. All it took was telling the “Stennis story” about powering this nation’s space dreams for 56 years and counting.

Stories are powerful. I still remember listening to my grandgator tell stories of when he was a hatchling. They sounded like tales from a great adventure book!

That is how the Stennis story sounds as well because it really is a tale of great adventure, full of big dreams and daunting work and the wonderful things that happen when those two meet. Challenges are overcome. Goals are achieved. Not only do you fly among the stars, but you get to take a walk on the moon. Ark!

Stennis leaders work hard to tell the story because it is worth telling and because it has not yet ended. Every

spring, they travel to the state capital to share it with Mississippi leaders. They also work year-round to bring it to students as they sponsor educational events and activities across the state. They train teachers so they can bring the story into classrooms. They host interns to give them firsthand experience of what it is like to work for NASA and at Stennis.

NASA folk go out regularly as part of Speakers Bureau and share presentations with people all around Mississippi. They invite others on site for special events to learn the story firsthand. They coordinate with the INFINITY Science Center to showcase Stennis and offer daily bus tours to INFINITY visitors.

However, the real key to sharing the “Stennis story” falls to each of us who work here. It is our excitement about the adventure we are on that excites others, just as my talking about rocket engines and space travel got my friends eager to head this way. They want to see the story for themselves now, want to be a little part of it.

I bet people you meet every day would want to do the same – if they knew the story. So, do not be one of those shy gators. Tell them!



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NASA conducts test of 2nd SLS flight controller

NASA engineers successfully conducted the second in a series of RS-25 flight controller tests on May 23, 2017, stepping closer to deep-space exploration with the world's most-powerful rocket. The test was set after a facility issue, subsequently resolved, forced rescheduling of a May 16 hot fire. The 500-second – more than eight full minutes – test on the A-1 Test Stand at NASA's Stennis Space Center in Mississippi marked another milestone toward launch of NASA's new Space Launch System (SLS) rocket on its inaugural flight, known as Exploration Mission-1 (EM-1). The SLS rocket, powered by four RS-25 engines firing simultaneously, will provide 2 million pounds of thrust and work in conjunction with a pair of solid rocket boosters. The RS-25 engines for the initial flight are former space shuttle main engines, modified to perform at a higher level and with a new controller. The controller is the key modification to the engines. The component is often cited as the RS-25 "brain" that allows communication between the engine and the rocket. Prior to a flight, engine performance specifications, such as percentage of thrust needed, are programmed into the controller. The controller then communicates the specifications and ensures these are being met by monitoring and controlling such factors as propellant mixture ratio and thrust level. Stennis performed an earlier series of tests to gather data for development of the new controller, which is a collaborative effort of NASA, RS-25 prime contractor Aerojet Rocketdyne of Sacramento, Calif. and subcontractor Honeywell of Clearwater, Fla. The first flight controller was tested in March at Stennis for installation on one of the four EM-1 engines. Pending data review from the May 16 test, the second flight controller will be installed on SLS for EM-1. A third flight controller is scheduled for testing in July at Stennis. Tests are conducted by a team of NASA, Aerojet Rocketdyne and Syncom Space Services engineers and operators. Syncom Space Services is the prime contractor for Stennis facilities and operations.



NASA leaders discuss FY 2018 budget proposal



(Top photo) Stennis Space Center employees watch a live videocast May 23 of NASA acting Administrator Robert Lightfoot discussing details of President Trump's proposed fiscal year 2018 budget, which includes \$19.1 billion for the space agency. In a released statement, Lightfoot characterized the proposal as a very positive budget that "reflects the president's confidence in our direction and the importance of everything we've been achieving." He praised the NASA team and its work for making a real difference in the country and around the world. For NASA's 2018 budget materials, visit: <https://www.nasa.gov/budget>.

(Right photo) Stennis Space Center Director Rick Gilbrech speaks to site employees following the rollout of the president's proposed fiscal year 2018 budget May 23. Gilbrech discussed areas of work under way at the center, including rocket engine testing to support the new Space Launch System.



Hail & Farewell

NASA bids farewell to the following:

Kim Avery	Management and Program Analyst	Office of the Chief Financial Officer
James Huk	Deputy, Procurement Officer	Office of Procurement
James Jacob	Equal Employment Manager	Office of Diversity and Equal Opportunity

NASA welcomes the following:

Andrew Henken	AST, Mechanical Experimental Equipment	Engineering and Test Directorate
John Hornor	AST, Mechanical Experimental Equipment	Engineering and Test Directorate

Stennis family members visit namesake center



Stennis Space Center leaders stand with three member of late Sen. John C. Stennis' family during a May 31 visit to the rocket engine test site. A longtime U.S. senator from Mississippi, Stennis was instrumental in locating and supporting the NASA center. The site was named in his honor in 1981, and a portrait of the late senator can be seen in the background,

hanging in the lobby of the main NASA administration building. Those shown are (l to r): Stennis Associate Director Ken Human, Stennis Deputy Director Randy Galloway, Stennis great-granddaughter Grey Kenna, Stennis daughter Margaret Womble, Stennis granddaughter Jane Kenna and Stennis Director Rick Gilbrech.

NASA partnership group gathers for Stennis meetings

Members of NASA's Partnership Community of Practice stand in front of the Roy S. Estess Building on May 18. The group held three days of scheduled meetings May 16-18 at the rocket engine test site. NASA engages in a variety of partnerships with international, intergovernmental, academic, industrial, academic and entrepreneurial communities to support ongoing work and missions and to promote the spinoff benefits of agency technologies and advances.



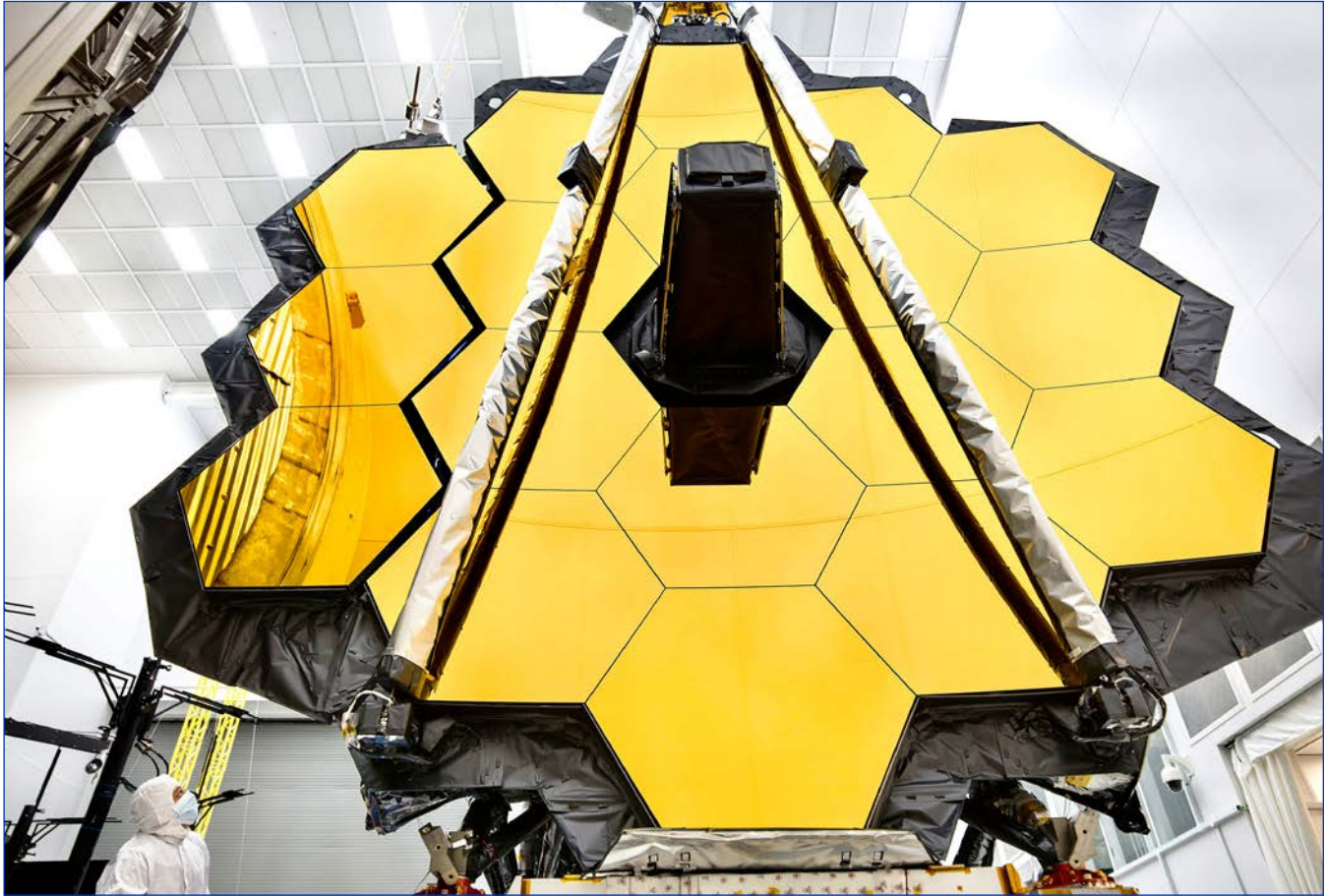
Stennis leaders, Haise present case study



Stennis Space Center Associate Director Ken Human (below, l), Apollo 13 astronaut Fred Haise (below, r) and Stennis engineer John Stealey (above, r) led site employees in an interactive case study focused on a trio of NASA space missions June 13. Haise led the presented that focused on contrasts between and lessons learned from the Apollo 13 mission in 1970, the shuttle Challenger mission in 1986 and the shuttle Columbia mission in

2003. The case study was presented in a pair of sessions to accommodate the number of registered participants. Among other things, the presentations focused on such areas as technical competence vs. bureaucratic process, schedule pressure vs. safety as a priority, the normalization of deviance, suppressing dissent vs. encouraging dissent, the role of data in decision making and the attributes of a model technical organization.





The towering primary mirror of NASA's James Webb Space Telescope stands inside a clean room at NASA's Johnson Space Center in Houston, where it will undergo its last cryogenic test before it is launched into space in 2018. In preparation for testing, the "wings" of the mirror (which consist of the three segments on each side) were spread open. This photo shows

one fully deployed wing, and one that is moments from being fully deployed. The James Webb Space Telescope is the world's most advanced space observatory and designed to unravel some of the greatest mysteries of the universe. It is a joint project of NASA, the European Space Agency and the Canadian Space Agency.

NASA in the News

NASA names 2017 astronaut class

After receiving a record-breaking number of applications, NASA has selected its largest astronaut class since 2000. Rising to the top of more than 18,300 applicants, NASA chose 12 women and men as the agency's new astronaut candidates. Vice President Mike Pence joined NASA leaders June 7 as they introduced the members of the 2017 astronaut class at NASA Johnson Space Center in Houston. The astronaut candidates will return to Johnson in August to begin two years of training. They then could be assigned to any of a variety of missions, including: performing research on the International Space Station, launching from American soil on spacecraft built by commercial companies and departing for deep space missions on NASA's new Orion spacecraft and Space Launch System rocket. With the 2017 astronaut candidate class, NASA now has selected 350 astronauts since the original Mercury 7 in 1959. For more on the new candidates, visit: <https://www.nasa.gov/2017Astronauts>. Follow NASA astronauts at: https://www.twitter.com/NASA_Astronauts.

NASA selects service contractor

NASA has selected Bastion Technologies, Inc. of Houston to provide safety and mission assurance support services at the agency's Marshall Space Flight Center in Huntsville, Alabama, as well as Stennis Space Center near Bay St. Louis, Mississippi, and Michoud Assembly Facility in New Orleans. The cost-plus award fee contract has a base period of two years, which begins July 1, 2017, six one-year options and a potential total value of \$267.5 million. Under the small business set-aside contract, Bastion will be responsible for providing a range of services for the trio of sites, including safety, mission support, and technical and engineering services. Safety and mission assurance services in the contract include planning, implementation and assessment of system safety engineering, industrial safety, reliability and maintainability engineering, safety and mission assurance management information, quality assurance/engineering, project assurance, risk management, independent assessment, documentation and report support.

NASA engineer to bring BBQ skills to Cooking Channel show

NASA Stennis Space Center employee Howard Conyers already carries a number of interesting titles – Ph.D graduate, aerospace engineer, guest lecturer and historian, traditional whole hog BBQ pitmaster. On June 20, he will add another – television celebrity.

An episode of the Cooking Channel's Man Fire Food airing that day at 8 p.m. CDT will feature Conyers.

While the New Orleans resident could not reveal details about his appearance prior to its airing, it is a safe bet the show will involve sharing his passion for South Carolina whole hog BBQ tradition, as well as some history. It is the tradition he grew up with – and now seeks to maintain and share with others. "I've been involved with whole hog BBQing since I was 4 years old, watching my father," says Conyers, who was raised near Manning, South Carolina, a rural town of about 4,000.

Conyers cooked his first whole hog at age 11, continuing a practice passed down in his home community through generations for 200 years. He perfected his cooking skills until he headed to college, where he earned an undergraduate degree at North Carolina A&T State University and a doctorate in mechanical engineering and materials science from Duke University.

Conyers then traveled west, accepting a position at Stennis Space Center near Bay St. Louis, Mississippi, in 2009. He chose to live in nearby New Orleans, still recovering from the devastating effects of Hurricane Katrina. "I saw it as a way to help rebuild and give back to the community," Conyers says. "I made the decision to accept the job at Stennis partially because of that opportunity."

On visits back to South Carolina, Conyers found the whole hog BBQ tradition was slowly dying in his home community. "Ultimately, I realized it was my responsibility to carry it on," he says.

He got the chance when he saw an advertisement for the 2013 Hogs for the Cause competition in New Orleans to benefit children with pediatric cancer. For the next four years, Conyers competed, gaining notoriety for his cooking, as well as his traditionalist approach and the irresistible storyline of a rocket scientist doubling as a BBQ pitmaster. Soon, he was asked to participate in other cooking events and invited to deliver lectures on

the South Carolina whole hog tradition. He cooked with award-winning chefs and eventually came to the notice of the Man Fire Food show.

Just days before the show airs, Conyers reflected on the journey and how his engineering and BBQ pursuits have dovetailed. Both are built on the experiences of those who came before: Stennis has tested rocket engines for 50 years and counting, and Conyers is continuing a generations-old cooking tradition.

Conyers saw this clearly last year when he traveled to Utah to test a new High Dynamic Range Stereo X

people together and celebrate community and diversity. Maybe not everyone can cook it a certain way, but everybody can eat it and enjoy it together."

Engineering also has become a factor in his cooking. Conyers is intent on continuing the whole hog tradition passed down to him; in fact, he is working on a book about it. To that end, he does not invest in expensive equipment or use common instruments like a thermometer. "All I need is wood, fire and a pit to hold it," he says. At one Hogs for the Cause competition, he even used an old converted refrigerator to cook, just as he had seen his father do years ago.



NASA engineer Howard Conyers is shown on the A-1 Test Stand at Stennis Space Center. In addition to his contributions to rocket engine test work at Stennis, Conyers is recognized as a traditional BBQ pitmaster.

(HiDyRS-X) camera he developed as part of a NASA Early Career Initiative Program. The revolutionary new camera allows engineers to record and view propulsion test plumes in never-before-seen detail.

During the camera's successful test in Utah, Conyers says he realized how many different – and differing – people had contributed to and enabled the effort. "It's just like a rocket launch," he explains. "We may test the engines used for the launch here at Stennis, but how many hundreds of others are brought together to work and make it all possible? In the same way, food is a way to bring

He uses a device known as a "burn barrel" to burn wood and make his own coals. He splits and seasons the pig himself, then monitors the cooking process, which usually takes about 14 hours. By the time the pig is done, Conyers has up to 24 total hours invested in the effort. Another six to eight hours of cleanup will follow. Add it up and you have a whole weekend job.

Such tradition notwithstanding, he now finds himself bringing to his BBQ efforts the same attention to detail demanded in his engineering career. "What I do is really an art form and skill," he says. "It's a true tradition, and I want to maintain that tradition. At the same time, I want to seek ways to improve the technical process itself."

Conyers does with BBQ, then, what he does when dealing with an engineering problem – he takes notes, investigates what happened and why, and pays attention to extenuating factors. A lot comes into play that can affect cooking, such as weather conditions and the size of the pig. Conyers is scheduled to cook in Denver this summer, and already, he is contemplating how the higher altitude will affect his effort, something his ancestors in the Pee Dee whole hog BBQ belt of South Carolina never had to consider.

Such diligence is an illustration of the approach Conyers emphasizes when he speaks to others, particularly young people. "I really want educate people, to inspire kids that they can do anything, to be who they want to be, including a NASA engineer," he says. "I tell them – push past your ancestors' wildest dreams."

For more regarding the HiDyRS-X camera project, visit: <https://go.usa.gov/xNyS3>.

Journey band member visits Stennis



Ross Valory, bass guitar player with the Rock and Roll Hall of Fame band Journey, visited Stennis Space Center on June 8. Valory, along with some members of the band's crew, toured various facilities at Stennis, including the B-2 Test Stand, which will be used to test the core stage for NASA's Space Launch System (SLS). The SLS is a powerful, advanced launch vehicle being built for a new era of

human exploration beyond Earth orbit. With its unprecedented power and capabilities, SLS will launch crews of up to four astronauts in the agency's Orion spacecraft on missions to explore multiple, deep-space destinations, eventually including Mars. During his Stennis tour, Valory shot a short video noting that he is happy to be a part of America's journey to Mars.

TV anchor promotes diversity at Stennis



Thanh Truong, a news anchor at WWL-TV in New Orleans, speaks during a program promoting Asian American Pacific Islander Heritage Month at Stennis Space Center on May 18, 2017. Truong was born in Can Tho, Vietnam. He and fellow family members escaped from the country in 1978. The family spent months in a Thailand refugee camp before reaching the United States.

1975 – a new rocket engine test assignment

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 1973, the then-Mississippi Test Facility (MTF) had a total of 1,127 employees. After the Apollo Program ended, work forces were cut as the facility faced tough times. However, an engine test project was on the horizon – the space shuttle. The space shuttle was designed as a reusable vehicle to carry humans to low-Earth orbit following the Apollo Program.

MTF jumped at the chance to test the engines that would power the shuttle fleet. An effort to have shuttle engines manufactured at Michoud Assembly Facility (MAF) in nearby New Orleans and tested at MTF went into motion. One of the companies entering bids for the project was the Lockheed Propulsion Co. of California, which embraced the idea of using MAF and MTF to perform the work. Other companies putting in bids for the work were Thiokol Chemical Corp. of Brigham City, Utah; Aerojet Solid Propulsion Co. of Sacramento, California; and United Technology Center of Sunnyvale, California.

With bids submitted, a delegation of elected officials, community leaders and business people from Louisiana and Mississippi began lobbying for the work to come to their states. In late 1973, the award was given to Thiokol Chemical Co. The local community around MAF and MTF were angered by the announcement since just a few

years earlier, MTF had been named “the nation’s foremost propulsion test site.”

The announcement set off a series of events that would shape the future of MTF: the protest of the solid rocket motor contract award to Thiokol; calls for “full utilization of MTF” by U.S. Sen. John C. Stennis, U.S. Rep. Trent Lott and other Mississippi and Louisiana officials; and a campaign for renaming the facility and establishing it as an independent NASA installation no longer under direction of Marshall Space Flight Center (MSFC) in Huntsville, Ala.

Sen. Stennis spearheaded the movement, and on June 14, 1974, Mississippi Test Facility was renamed the National Space Technology Laboratories (NSTL) and became an independent installation of NASA, reporting to NASA headquarters. Stennis said the “efforts to increase the use of NSTL by NASA and other federal agencies [would] now be more successful than ever before.” Site Director Jackson Balch was quite pleased with the changes, saying that “it will be kind of nice to be a member of the club.”

Just a year later, on June 24, 1975, a brief, but very important event occurred at the newly independent site, the first ignition test of a space shuttle main engine (SSME). It lasted just a second but marked the return to propulsion testing for NSTL and opened the door for testing projects to follow, including the current testing of engines that eventually will carry humans on a journey to Mars.



Onlookers watch the first space shuttle main engine test on the A-1 Test Stand at Stennis Space Center on May 19, 1975.

Office of Diversity and Equal Opportunity

Uncovering talent – a new model of inclusion

Based on a study by the Deloitte University Leadership Center for Inclusion

It has now been many years since the diversity and inclusion revolution swept the corporate world. Today, most Fortune 500 companies (and federal agencies) have a diversity and inclusion program that superintends an impressive array of programs focused on the needs of a diverse workforce. Yet, reports suggest that full inclusion remains elusive.

The ideal of inclusion has long been to allow individuals to bring their authentic selves to work. However, most inclusion efforts have not explicitly and rigorously addressed the pressure to conform that prevents individuals from realizing that ideal. A study by the Deloitte University Leadership Center for Inclusion hypothesizes that a model of inclusion analyzing that pressure might be beneficial to historically underrepresented groups. Indeed, given that everyone has an authentic self, a culture of greater authenticity might benefit all individuals, including the straight white men who have traditionally been left out of the inclusion paradigm. To test this theory, the research draws on the concept of “covering.”

In 1963, sociologist Erving Goffman coined the term “covering” to describe how even individuals with known stigmatized identities made a “great effort to keep the stigma from looming large.” Goffman gave the example of how President Franklin Delano Roosevelt ensured he was always seated behind a table before his Cabinet entered. Roosevelt was not hiding his disability – everyone knew he was in a wheelchair. However, he was covering, making sure his disability was in the background of the interaction.

The pressure to cover is distinct from discrimination under governing legal standards. Organizations should be interested in covering not because they are “playing defense” against lawsuits, but because they are “playing offense” to create a more inclusive culture over and above legal compliance. Most Fortune 500 companies are seeking to create that culture. Yet the covering concept has not been applied to the corporate context. The Deloitte research sets out to do so.

To measure the prevalence of covering, a survey was distributed to employees in organizations spanning 10 different industries. The 3,129 survey respondents included a mix of ages, genders, races/ethnicities and orientations. The respondents also came from different levels of seniority within their organizations.

Sixty-one percent of respondents reported covering at work. Eighty-three percent of lesbian/gay/bisexual/transgender individuals, 79 percent of blacks, 67 percent of women of color, 66 percent of women and 63 percent of Hispanics cover. Covering occurred with greater frequency within groups that have been historically underrepresented. At the same time, 45 percent of straight white men – who have not been the focus of most inclusion efforts – reported covering. This finding seems particularly promising, given that a model of “inclusion” should, almost by definition, be one in which all individuals can see themselves.

All surveyed individuals worked for companies with inclusion efforts pertaining to race and ethnicity. Nevertheless, almost all black respondents reported pressure to downplay their identities in a way that their mainstream counterparts did not. Many black respondents reported that they could not associate with each other too much in public, lest they be seen as a “clique.” No white respondent expressed that view.

The issue is not formal inclusion – none of these individuals complained of exclusion from a particular work situation. The question was not whether they were included, but on what terms they felt their inclusion rested. Often that perceived social contract involved managing aspects of their identity in a way that the dominant group would not have to do. These individuals felt they had to work their identities alongside their jobs.

The Uncovering Talent model presents a new alternative to existing inclusion efforts. It puts the spotlight on the pressure to conform that may be causing many inclusion efforts to stall. As the workforce becomes more diverse, this pressure to conform – real or perceived – will be felt ever more keenly.

The Uncovering Talent model addresses that pressure directly. In doing so, this rigorous, practical approach fulfills the promise of authenticity. It ensures that individuals can win at work without surrendering themselves. And it helps organizations find the talent within their ranks that only waits to be uncovered.

For additional information on the Uncovering Talent model and methods organizations can use to close the gap between values and practices, visit online at: <http://bit.ly/1zRzHA1>.



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.



Tom Stanley



“Houston, Tranquility Base here. The Eagle has landed.” Tom Stanley was a boy in Biloxi, Miss., sitting on the floor in front of the television as those words were spoken by Apollo 11 astronaut Neil Armstrong on July 20, 1969. The United States had just succeeded in the greatest space adventure ever attempted – sending humans to the lunar surface for the first time in history. Today, Stanley is 26 years into a career at Stennis Space Center, working to support NASA’s next great space adventure – a journey to Mars. As the Stennis technology transition lead for NASA’s Small Business Innovation Research and Small Business Technology Transfer programs, Stanley works to enable cutting-edge advances needed to achieve the new space goal. He understands the challenge well. “Getting to Mars will be much harder than the moon, so we’re going to need everyone to band

together to realize our dreams,” he says. Stanley has served in several positions at Stennis, including in areas of construction management, applied science, remote sensing, and data acquisition and controls. He came to the center after working at nearby Keesler Air Force Base, a position that required extensive travel. With his children getting older, Stanley was interested in spending more time at home. Twenty-six years later, he remains excited about the days ahead. “Stennis will always be one of the best places to work,” he says. “There is such a wide array of backgrounds and expertise that all come together here. Changing programs and projects always bring new challenges. We’ve been a leader at building the federal city concept and working with the commercial space industry. The can-do attitude at Stennis forces us to ask how rather than why not.”

Hurricane Guide

The 2017 hurricane season has arrived – and NASA's John C. Stennis Space Center has prepared this four-page guide as a resource for Stennis employees. The guide offers valuable information: a contraflow evacuation map, storm-rating information and contact numbers for emergency situations. It also serves as an important reminder for every Stennis employee to be prepared and alert for whatever the 2017 storm season may deliver.

Stennis Space Center WILL NOT serve as a shelter to any workers or families (to include families of ride-out personnel).

As part of their hurricane season preparation, individuals are urged to contact county/parish offices to identify available shelters in their areas.

In both Mississippi and Louisiana, persons are reminded they may call 211 to obtain information about health and human services available in their areas. The number is staffed 24 hours a day in Louisiana and on weekdays, 8 a.m. to 5 p.m., in Mississippi. It offers information on various services, including food, clothing, shelters and transportation assistance.

Stennis employees are reminded to discuss their evacuation plans with supervisors so they can be contacted after a storm or to acquire their company/agency policy on contacts after a storm.

NOTE: If NASA employees cannot contact Stennis due to downed communications after a storm, they should call 877-776-4654 to report their status.

Emergency preparation checklist

- Gather a two-week inventory of emergency supplies, such as flashlights, batteries, a battery-operated radio, blankets and pillows, canned and dried food, non-electric can opener, eating/cooking utensils, emergency cooking facilities (grill or camp stove), fuel, cash and/or credit cards, clothes, toiletries, water (1 gallon per person a day), prescription medications, first-aid kit/handbook, fully-charged cell phone, towels, sleeping bags, etc.
- Back up computer files.
- Collect valuable papers, such as social security cards, birth certificates, marriage and death records, insurance policies, savings and checkbooks, etc.
- Prepare an inventory of household goods.
- Gather basic post-storm cleanup and repair supplies, such as axes, brooms, a camera to record damage, cleaning supplies, mosquito repellent, trash bags, hand tools, a chain saw, duct tape, plastic tarps, extension cords, a ladder, generator and fuel, etc.

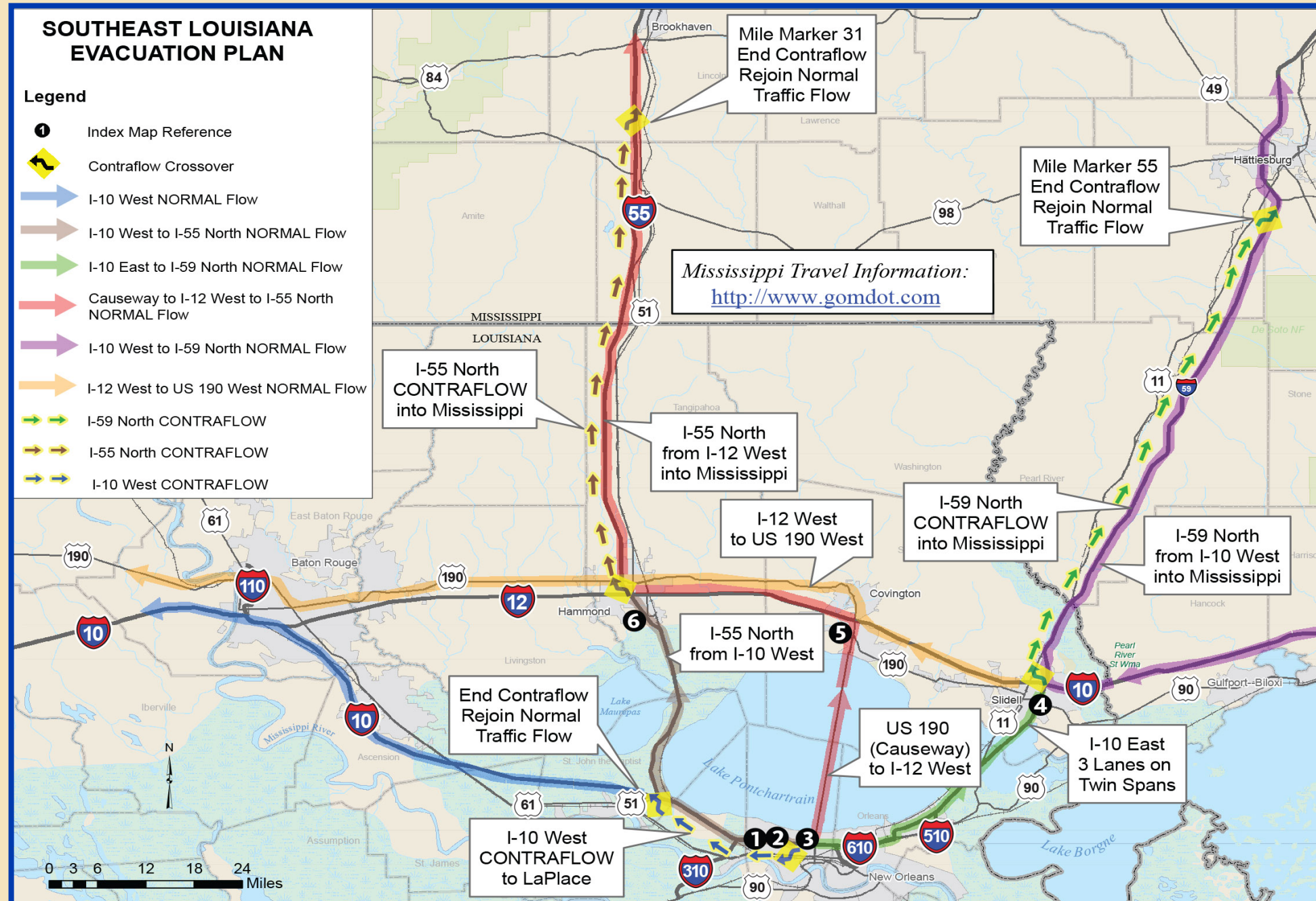
Louisiana-Mississippi interstate contraflow plan

In an effort to assist Louisiana in the event of a mandatory hurricane evacuation, the Mississippi Department of Transportation will implement contraflow (lane reversal) for I-59 and I-55 when requested by Louisiana and approved by the Mississippi governor.

- A contraflow decision is not automatic and will only be used when absolutely necessary. Citizens should not delay evacuation plans in anticipation of contraflow.
- I-59 contraflow will begin in Louisiana, extend into Mississippi and end at mile marker 55

- I-55 contraflow will begin in Louisiana, extend into Mississippi and end at mile marker 31.
- Exits within the contraflow sections of the interstate highways will remain open as conditions allow. Law enforcement officers will assist with traffic control.
- Shoulders of both Interstates 59 and 55 should be kept clear for emergency vehicles. Motorists needing to stop should use the next available exit.
- Motorists traveling west into Louisiana on I-10 will be routed north onto I-59 at the I-10/I-12 split.

- Tune in to public broadcasting radio stations for emergency information and road conditions.
- The following procedures will be enforced in the Hattiesburg area to avoid severe congestion:
 - Northbound traffic on Hwy. 49 may not be allowed to exit at either Hwy. 98 or I-59.
 - Northbound traffic on I-59 can only exit at Hwy. 11 (Exit 60) or west onto Hardy Street/Hwy. 98 (Exit 65).
 - Westbound traffic on Hwy. 98 will not be allowed to exit onto Hwy. 49, but directed to merge onto I-59 instead.



Hurricane strength

Category One

Winds 74-95 mph. Storm surge 4-5 feet.

Category Two

Winds 96-110 mph. Storm surge 6-8 feet.

Category Three

Winds 111-129 mph. Storm surge 9-12 feet.

Category Four

Winds 130-156 mph. Storm surge 13-18 feet.

Category Five

Winds greater than 157 mph. Storm surge more than 18 feet.

Severe weather terms

Storm surge

An abnormal rise of sea/gulf water along a shore as the result, primarily, of winds from a storm.

Watch

Adverse conditions are *possible* in the specified watch area, usually within 36 hours. A watch may apply to thunderstorms, tornadoes, floods or hurricanes.

Warning

Adverse conditions are *expected* in the specified warning area, usually within 24 hours. A warning may apply to thunderstorms, tornadoes, floods or hurricanes.

Public shelter information

Shelters are operated by trained individuals and are designed to ensure the safety, security and basic needs of sheltering residents are met. As a reminder, no one is allowed to shelter at Stennis Space Center.

What to bring to a shelter

Residents seeking shelter should bring a change of clothing, a blanket and a pillow for each person in their family or group. Residents also should bring their disaster supply kit, including food, medications, comfort items and special items for infants or elderly persons.

What not to bring to a shelter

No weapons, drugs or alcohol are allowed.

Hurricane preparedness apps

Alert FM

Functions as a weather radio, with unique local alerts; visit www.alertfm.com.

FEMA

Provides safety tips, interactive aids and maps of shelters and recovery centers.

Know Your Plan

An Insurance Information Institute app with various preparation and mitigation aids.

Health Vault

HealthVault.com offers apps for tracking and storing health information

National resource information

American Red Cross (www.redcross.org)	800-REDCROSS (733-2767)
Federal Emergency Management Agency (www.fema.gov).....	800-621-FEMA (3362)
National Oceanic and Atmospheric Administration (NOAA).....	www.noaa.gov
NOAA National Hurricane Center	www.nhc.noaa.gov
NOAA National Weather Service Southern Region (www.srh.noaa.gov)	Jackson 601-965-4638 Mobile 251-633-6443 Slidell 985-649-0357
U.S. Department of Homeland Security	www.dhs.gov
National Flood Insurance Program (www.floodsmart.gov)	800-621-3362

Mississippi resource information

Mississippi Emergency Management Agency (www.msema.org)	866-519-MEMA (6362) (24 hrs) 800-222-MEMA (6362)
Mississippi Department of Transportation (www.mdot.ms.gov and www.mdottraffic.com)	866-521-MDOT (6368)
Mississippi Highway Safety Patrol (www.dps.state.ms.us)	601-987-1212 (*HP from any cell)
Mississippi Public Broadcasting (www.mpbonline.org)	(24-hour hotline) 601-326-1184
Governor's Office (www.governorbryant.com)	601-359-3150
Mississippi Insurance Department (www.mid.ms.gov)	800-562-2957
U.S. Coast Guard - Sector Mobile (www.uscg.mil/D8)	251-441-5720
Mississippi Power (www.mississippipower.com)	800-487-3275
Coast Electric Power (www.coastepa.com)	877-769-2372

Louisiana resource information

Office of Homeland Security and Preparedness (www.gohsep.la.gov)	225-925-7500
Louisiana Department of Transportation (www.dotd.louisiana.gov).....	877-4LA-DOTD (452-3683)
National Weather Service Forecast Office (New Orleans/Baton Rouge)	985-649-0357 or 504-522-7330
Louisiana State Police (www.lsp.org)	800-469-4828 (*LSP from any cell phone)
Louisiana Traveler Information (www.511la.org)	dial 511 within state; 88-ROAD-511 (888-762-3511) outside state
Louisiana Governor's Office (www.gov.louisiana.gov)	866-366-1121
Louisiana Department of Insurance (www.ldi.louisiana.gov)	800-259-5300 or 225-342-5900
U.S. Coast Guard - Sector New Orleans (www.uscg.mil/D8/sectNOLA/)	504-365-2200
Cleco Corporation (www.cleco.com)	800-622-6537
Entergy (www.entergy-louisiana.com)	800-ENTERGY (368-3749) Power outages: 800-9OUTAGE (968-8243)
Washington-St. Tammany Electric Cooperative (www.wste.coop)	985-643-6612 Power outages: 866-672-9773