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# LAGNIAPPE

John C. Stennis Space Center

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February 2017

## SLS test series resumes

# NASA conducts RS-25 engine test



## 'We're marching ahead'

Stennis director holds annual community briefing

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**I**t hardly seems possible it was a whole year ago that I began offering monthly thoughts to ponder. You might think it amazing I managed to think up enough to say for a whole year. However, friends will tell you, talking has never been a problem for this ole Gator. Ark!

Also, there has been plenty to talk about during the past year, what with all of the activity under way around here. Why, just this month, we fired off the 2017 test calendar with a picture-perfect test of an RS-25 rocket engine. A week before that, Center Director Rich Gilbrech and others gathered with community leaders to give an annual Stennis update. If you were there, you probably felt as I did – that the more things change, the more they stay the same.

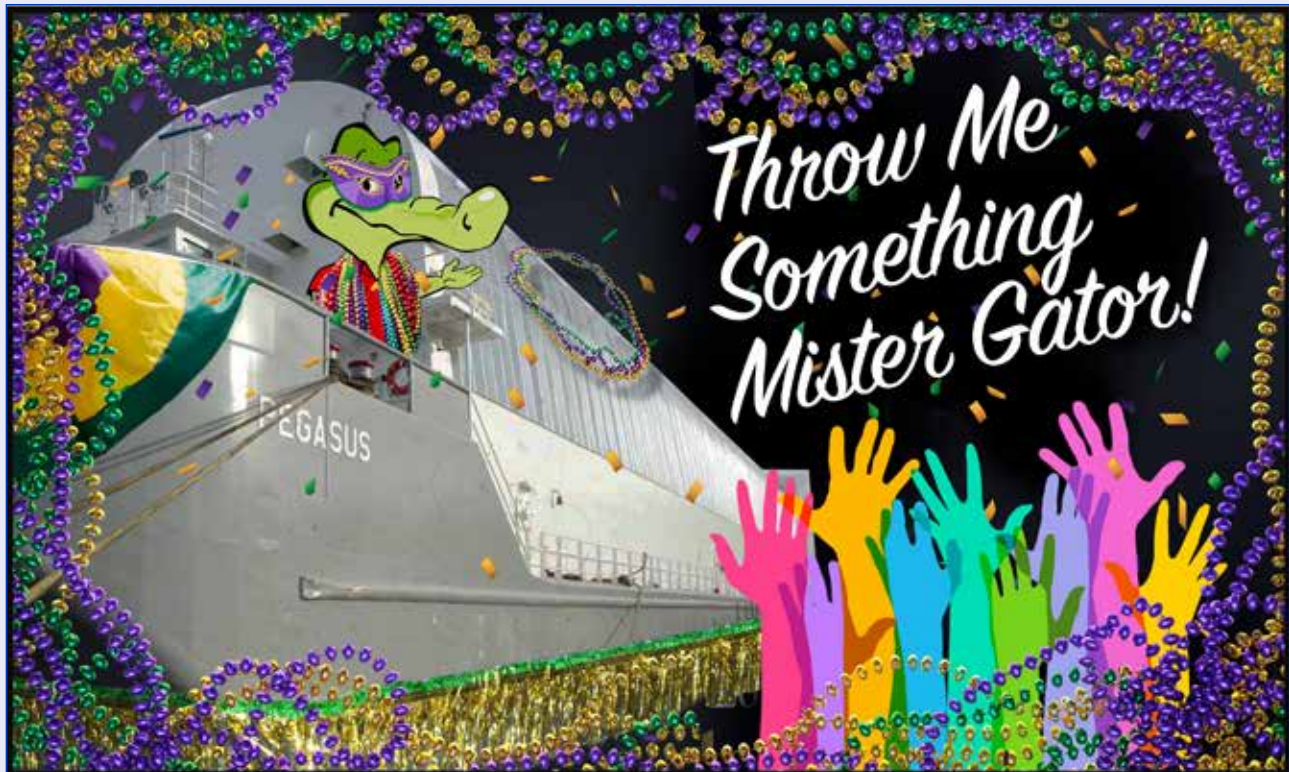
Changes certainly are on the way – in engine testing, as well as commercial development and community partnership. At some point in the future, Hwy. 607 through Stennis will be opened up to the general public, which will spur new commercial development for the site. Meanwhile, the center is positioning itself to move ahead in areas of propulsion testing and flight testing for unmanned systems.

In other words, Stennis is continuing to do what it has done through the years – remain at the cutting edge of the future. Just thinking about that at this time of the year brings to mind the story of the Le Moyne brothers – d'Iberville and d'Bienville – who were sent this way by King Louis XIV at the end of the 17th century.

As legend holds, they landed 60 miles downriver of what later became New Orleans in March 1699. It was Fat Tuesday back in France, so they named the landing spot Point du Mardi Gras and held a small celebration. Imagine what they would think if they could visit New Orleans and see what that celebration has become!

It is the same with Stennis. It began as a single-mission site to test Saturn V rocket stages and engines. Look at it now, still at the forefront of NASA rocket engine and stage testing but also a federal city for more than 40 other companies and organizations.

All the changes can make you dizzy but are also cause for our own celebration. So, laissez les bon temps rouler, Stennis Space Center! Now, if you will excuse me, I have a Mardi Gras costume to assemble. Throw me something, sister. Throw me something, mister. Ark!



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# A rainbow view of NASA's RS-25 engine test

NASA engineers conducted their first RS-25 test of 2017 on the A-1 Test Stand at Stennis Space Center near Bay St. Louis, Mississippi, on Feb. 22, continuing to collect data on the performance of the rocket engine that will help power the new Space Launch System (SLS) rocket. Shown from the viewpoint of an overhead drone, the test of development engine No. 0528 ran the scheduled 380 seconds (six minutes and 20 seconds), allowing engineers to monitor various engine operating conditions. The test represents another step forward in development of the rocket that will launch humans aboard Orion deeper into space than ever before. Four RS-25 engines, together with a pair of solid rocket boosters, will power the SLS at launch on its deep-space missions. The engines for the first four SLS flights are former space shuttle main engines, which were tested extensively at Stennis and are some of the most proven engines in the world. Engineers are conducting an ongoing series of tests this year for SLS on both development and flight engines for future flights to ensure the engine, outfitted with a new controller, can perform at the higher level under a variety of conditions and situations. Stennis is also preparing its B-2 Test Stand to test the core stage for the first SLS flight with Orion, known as Exploration Mission-1. That testing will involve installing the flight stage on the stand and firing its four RS-25 engines simultaneously, just as during an actual launch. The Feb. 22 test was conducted by Aerojet Rocketdyne and Syncom Space Services engineers and operators. Aerojet Rocketdyne is the prime contractor for the RS-25 engines. Syncom Space Services is the prime contractor for Stennis facilities and operations. For more on SLS, visit: <http://www.nasa.gov/sls>. For video footage of the RS-25 test, visit: <http://go.usa.gov/x9SPE> and click "Rainbows and rocket engine" link. Photo credit: KSC Unmanned Aerial Systems Team.

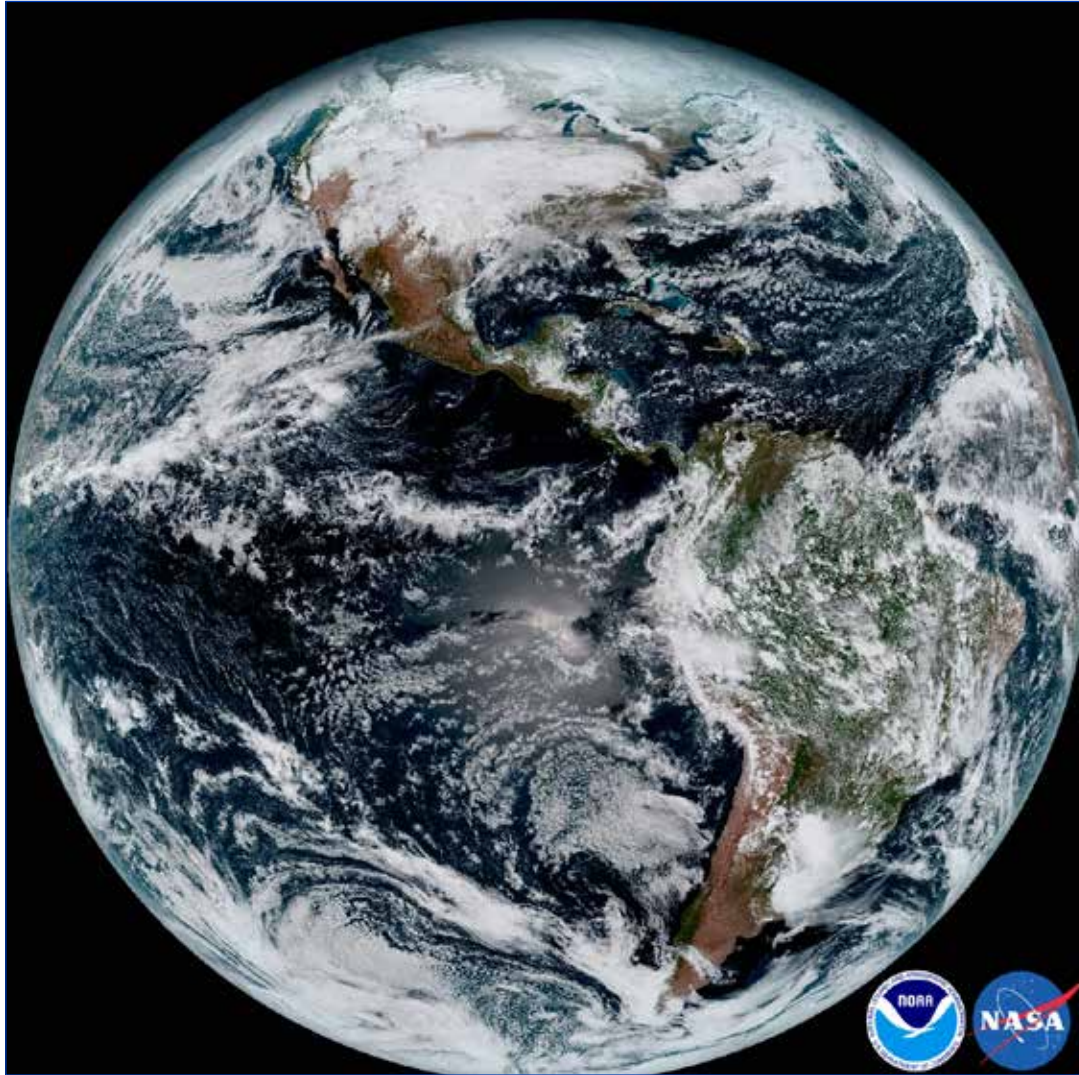


## FULFILLING NASA'S EXPLORATION MISSION

## Stennis director – ‘It will be an exciting year’

Stennis Space Center is focused and moving forward in 2017, Director Rick Gilbrech told community leaders during his annual briefing Feb. 15 at INFINITY Science Center. “It will be an exciting year ....,” Gilbrech said after updating various areas of Stennis activity. “We’re marching ahead.” Various area leaders attended the annual breakfast event, which also featured updates from Bill Burnett of the Naval Meteorology and Oceanography Command at Stennis, Lt. Cmdr. Kerry Jackson of the U.S. Naval Small Craft Instruction and Technical Training School at Stennis and John Wilson of the INFINITY Science Center. During his remarks, Gilbrech provided updates on NASA’s ongoing work, including progress on plans to return to deep space exploration. Gilbrech noted that Stennis conducted a total of 120 tests on five different test stands during 2016, supporting both NASA and commercial space efforts. He also reported the center is discussing plans to open Hwy. 607 through Stennis to the public, exploring ways to attract more businesses to the site and moving ahead in its use of newly restricted air space for testing of unmanned systems. Stennis remains a “very stable” economic force in the area and is committed to strengthening its presence and impact, he said. Stennis Space Center was built in the 1960s and has since grown into a unique federal city now in its 56th year of operation.





## New satellite returns its first images of Earth

The release of the first images from the National Oceanic and Atmospheric Administration's newest satellite, GOES-16, is the latest step in a new age of weather satellites. This composite color image of Earth on Jan. 15, 2017, was created using several of the 16 spectral channels available on the GOES-16 imager instrument. It shows North and South America and the surrounding oceans. GOES-16 observes Earth from an equatorial view about 22,300 miles high, creating full disk images extending from the coast of West Africa, to Guam, and everything in between. GOES-16 is the first spacecraft in a new series of NASA-built advanced geostationary weather satellites. NASA successfully launched the GOES-16 satellite on Nov. 19, 2016.

## NASA in the News

### Stennis responds to MAF tornado

No stranger to natural disasters, it was not a surprise that Stennis Space Center responded quickly when an EF-3 tornado hit NASA's Michoud Assembly Facility in New Orleans on Feb. 7. No deaths or serious injuries were recorded as a result of the storm, but almost half of Michoud facilities were damaged. As many as 200 vehicles sustained some type of damage, and the site was left without power following the storm. Hardware for NASA's heavy-lift rocket, the Space Launch System, and the Orion spacecraft was not damaged, and no damage was identified to the Pegasus barge docked at Michoud. Stennis personnel responded immediately following the storm, delivering nine vehicles, dozens of tarpaulins, four large generators and a trio of light banks as response and assessment efforts got under way. The Michoud site was closed for several days, but re-opened Feb. 13. Seven buildings remain closed, three with significant damage. Recovery work is progressing. For additional information, visit: <https://www.nasa.gov/michoud>.

### Telescope reveals exoplanet system

NASA's Spitzer Space Telescope has revealed the first known system of seven Earth-size planets around a single star. Three of these planets are firmly located in the habitable zone, the area around the parent star where a rocky planet is most likely to have liquid water. The discovery sets a new record for greatest number of habitable-zone planets found around a single star outside the solar system. All seven planets could have liquid water – key to life as we know it – under the right atmospheric conditions, but the chances are highest with the three in the habitable zone. At about 40 light-years (235 trillion miles) from Earth, the system of planets is relatively close, in the constellation Aquarius. Because they are outside the solar system, the planets are scientifically known as exoplanets and have been labeled TRAPPIST-1. For more information about Spitzer, visit: <https://www.nasa.gov/spitzer>. For more information on the TRAPPIST-1 system, visit: <https://exoplanets.nasa.gov/trappist1>. For more on exoplanets, visit: <https://www.nasa.gov/exoplanets>.

# NASA councils visit Stennis



Chief safety officers and chief engineers from across NASA gathered at Stennis Space Center in early February for scheduled council meetings. In addition to conducting business, council members toured Stennis facilities. In the top left photo, NASA Chief Safety Council members are shown in front of an RS-25 rocket engine in the Aerojet Rocketdyne Engine Assembly Building during a Feb. 7 tour. In the middle left photo, members of the NASA Chief Engineers Council stand in front of the B-1/B-2 Test Stand during a Feb. 8 tour. In the bottom photo, former astronaut Fred Haise speaks during a Feb. 8 joint session for the two councils. Haise, a native of Biloxi, Mississippi, recounted his experience during the Apollo 13 mission in 1971, which suffered an in-flight explosion and had to navigate a perilous return to Earth.





## Florida student group visits Stennis

The Tallahassee (Florida) Chapter of The Links, Incorporated visited Stennis Space Center on Jan. 27, learning about work at the rocket engine test site and touring facilities such as the B Test Stand. The Links and Links Beautillion are select, curriculum-based programs to promote higher education and celebrate achievements of minority male high school seniors while also encouraging, involving and inspiring them through high-quality leadership development, mentoring and character education opportunities.



## Mississippi group tours space center

Participants in the Kemper County Economic Development Authority's PACES Project toured Stennis Space Center on Feb. 2, visiting such facilities as the Aerojet Rocketdyne Engine Assembly Building, where RS-25 rocket engines are assembled and readied for testing and flight operations. The five-year-old PACES Project is designed to stimulate partnerships between the Kemper County school district, community leaders, business leaders, parents and students. It has been cited by Mississippi State University as being a "Best Practices" model project and also has been nominated for the Governor's Award by the Mississippi Association of Partners in Education.

## Hail & Farewell

### NASA bids farewell to the following:

**Robert Watts**  
Procurement Analyst  
Office of Procurement

### NASA welcomes the following:

**Veronica Causey**  
Accountant  
Office of the Chief Financial Officer

**Armando Delgado**  
AST, Flight System Test  
Engineering and Test Directorate

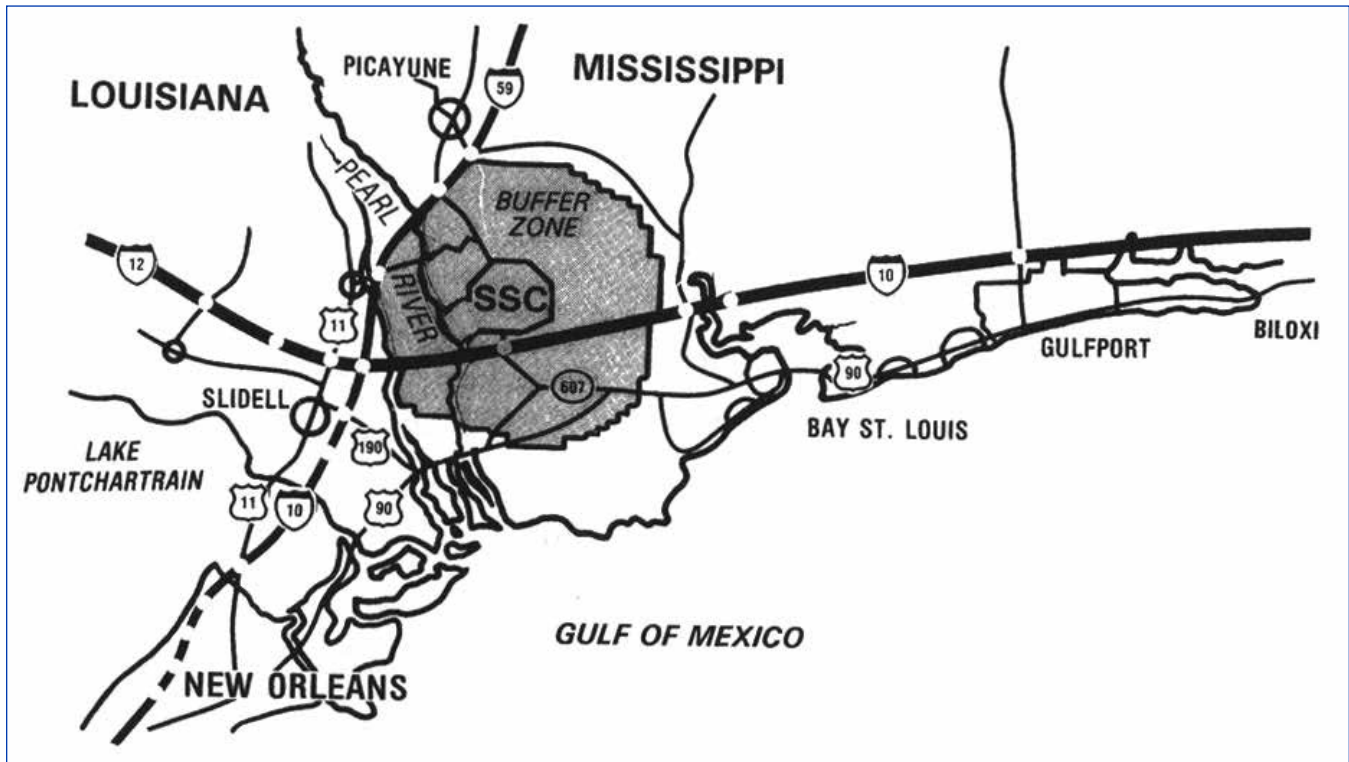
**Kay Doane**  
Procurement Analyst  
Office of Procurement

**Mark Hancock**  
AST, Mechanical Experimental Equipment  
Engineering and Test Directorate

**Linh Lam**  
Accountant  
Office of the Chief Financial Officer

**Justin Lucas**  
AST, Mechanical Experimental Equipment  
Engineering and Test Directorate

**Robert Williams**  
AST, Mechanical Experimental Equipment  
Engineering and Test Directorate



## ‘Entering Stennis Space Center Buffer Zone’

*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.*

Travelers drive through it every day. They see signs stating “Entering Stennis Space Center Buffer Zone.” It is a long stretch of road with pine trees and marsh, but it is quite more than that.

In 1961, after the location of the rocket testing site was announced to be in south Mississippi, the Army Corps of Engineers Office in Mobile, Alabama, began investigating real estate in what is now Stennis Space Center. At the time, fair market value for the land in the buffer zone was \$200 an acre in the area where the construction of the facilities would be and \$75 an acre in what was called the acoustic buffer zone easement. In total, the buffer zone area would be over 125,000 acres surrounding the then-Mississippi Test Operations facility (MTO), essentially a rough circle with MTO near the center.

The construction area would be around 13,500 acres in the inner circle of the buffer zone. The rest of the area would be exactly as it is named, an acoustic “buffer zone” for the loud rocket tests that would be conducted at the test facility.

The inner circle would be able to withstand noise at 125 decibels, with the outer circle able to withstand 110 decibels. For comparison, a normal, comfortable level of sound is usually around 70 decibels, with noise in the

upper 70s going toward the annoyingly loud level. Sound coming from testing rockets at that high decibel level can be quite damaging to humans and can cause structural damage to buildings as well.

The 13,500 acres of land the testing facility sits on is owned by the federal government. The other land in the buffer zone is largely owned by the original land owners and their descendants, who retain all rights to their land with one exception: they cannot build dwellings or similar structures on the land.

Many people and companies have tried to get pieces of the buffer zone for commercial use or personal buildings. The requests have been denied due to the incredible sound levels of the rocket testing. Studies conducted at Marshall Space Flight Center have shown that the effects of noise at those elevated decibels could shake a building from its foundation.

One business, however, did not get discouraged, the business of moonshine. In between 1960 and 1965, the population of the coast was increasing as industry grew, including the industry of making illegal whiskey. There were illegal whiskey stills located on the land within the buffer zone, as moonshine was a big business in the area. NASA was not too concerned with the activities of the moonshiners, but it made quite the lively topic of conversation. However, rather than get involved with the federal government and federal land, the moonshiners eventually moved their stills out of the buffer zone, to the other side of the forest.



## Office of Diversity and Equal Opportunity

# Nonprofit effort brings the vast outdoors to at-risk youth

The vast wilderness that surrounds the Mile High City is not far from the metropolis, but it is still out of reach for many, particularly low-income families and marginalized youths. Each day, Jes Ward works to change that trend. Ward is the executive director of cityWILD, which enables students in Denver to raft, backpack, mountain-bike, and snowshoe, while they also strive to reach their full potential.

CityWILD is a Denver nonprofit whose mission is to bring outdoor experiences “to a broad, inclusive audience. Toward that end, cityWILD organizes overnight and day trips for at-risk middle and high school students. The students can raft, backpack, mountain-bike, snowshoe, and more, in the process learning how to properly and safely explore the outdoors. But cityWILD is also much more than that. It is a free after-school program, offered four days a week during the school year, that concentrates on leadership development. It provides support services to assist youths as they deal with various issues at school, at home or in the community.

The oldest of six children, Ward knew at a young age that she wanted to get involved in education and youth work. While in high school, she participated in PeaceJam, a program in which Nobel Peace laureates nurture young peacemakers. She later served on a one-year AmeriCorps term with PeaceJam before spending 13 years on PeaceJam’s staff working with youths around the world and exploring social justice issues.

When she left PeaceJam, she wanted to return home to Denver. “I was looking for something that was more rooted in my community,” she says. She was already familiar with cityWILD from both growing up in the city and working with PeaceJam partner schools that were near cityWILD’s building.

CityWILD is empowering youth who would not otherwise have access to the opportunities and pathways that participation in the cityWILD program provides. “I see the transformation in young people when they have access to the outdoors and nature: It is incredible,” Ward says. “They are not the same young people that walk in the doors the first time.”

CityWILD’s principles and activities, Ward says, naturally support the emergence of leaders. “Many define leadership as getting young people to get in front of a room and speak,” she says. “CityWILD’s approach is a little different: Leadership is more organic than that, and it is in every action that we do, every day.”

Ward stresses the intentional size of cityWILD, which hosts roughly 100 students per year. It is a drop-in pro-

gram, she says, so somewhere between 10 and 30 might take part on a given day. “It is really important for us to know the names of the students who come through the door,” she says. Staff members also strive to be familiar with the students’ families and how the youths are doing in school.

Team members are not just going through the motions but are very perceptive, compassionate, and they engage with the kids on a personal level to help develop and encourage them to be productive members in the community. When the kids or families present a problem, they work tirelessly to find resources to help them through their struggles. For the children that attend cityWILD, and their families, having that type of support is invaluable.

The foundation of cityWILD’s success, Ward says, is the power of nature as a teacher. It is something that works particularly well for this age group. Teenagers are hard-wired to take risks. They are trying to push boundaries, and they are trying to learn about their place in the world. Nature and the outdoors provide an opportunity for youth to take that healthy risk.

*(Parts of this article were written by David Karas, correspondent for The Christian Science Monitor)*



### Stennis marks Black History Month

Kamili Shaw (l) talks about her career and life experiences with Stennis Space Center employees Cabrina Bell (r) and Christine Powell during an onsite Black History Month Program on Feb. 22. Shaw is a lead engineer at Stennis and was featured during the recent program as a NASA “hidden modern figure” who has impacted coworkers and others in a positive way. The Stennis Office of Diversity and Equal Opportunity highlighted a number of “hidden figures” at Stennis throughout February, culminating with exhibits and presentations for employees during the Feb. 22 program.



# 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 employees are highlighted on the following pages.



## Delton Rodriguez



Delton Rodriguez was senior power system engineer at NASA's Michoud Assembly Facility in New Orleans eight years ago when he heard about an electrical lead opening at Stennis Space Center. He jumped at the job. "I am always aware that I'm working within a unique group of people (here) who are advancing leading-edge technology," he says. "At Stennis, there is a special sense of being part of a historic agency that is always in the public eye." Since beginning work as a contractor, Rodriguez has joined the NASA Safety and Mission Assurance Office at Stennis as an electrical subject matter expert and lead auditor. He serves as the primary point of contact for electrical safety and mission assurance issues and represents Stennis during institutional facility and operational safety audits at other centers. As he reflects on his work at Stennis, he recalls an early task – a complete

rewrite of NASA's electrical safety program. "The ability to positively influence the future of the electrical safety program at Stennis via this document has given me a lot of satisfaction," Rodriguez says. He also enjoys working with other centers on electrical safety. "Seeing their progress instills me with a lot of appreciation for, and pride in, the agency," he adds. Looking ahead, Rodriguez is excited about the role Stennis is playing in testing for NASA's new Space Launch System and how that program will inspire a new generation of scientists and engineers. As a native of Chalmette, Louisiana, Rodriguez remembers watching the Apollo 17 mission to the moon, as well as Carl Sagan's *Cosmos* series, both of which were very influential for him. He lives just a bit farther upstate now in Abita Springs, where he enjoys family camping, hiking, cycling and restoring cars.

## Joy Smith



Growing up in Picayune, Mississippi, Joy Smith remembers windows of her home vibrating as rocket engines and stages were tested at Stennis Space Center. She made her first visit to the test site as a kindergarten student, excited to taste astronaut ice cream. In time, she was hired by a Stennis contractor as a student intern. Eighteen years later and counting, she is a member of the NASA Education Office at Stennis. Smith serves as the manager for NASA internships, fellowships and scholarships and of the Minority University Research and Education Project. In those roles, she works with students to help them work at and experience the nation's largest rocket engine test facility. "The best thing about working at Stennis is the unique work we do," Smith says. "I enjoy interacting with students and sharing information about our education programs and op-

portunities. I love hearing the excitement in their voices and seeing the excitement in their faces when they have the opportunity to experience at NASA firsthand." Looking back on her years at Stennis, Smith takes pride in the lives NASA education programs and initiatives have touched and how they have inspired so many students to pursue STEM (science, technology, engineering and mathematics) studies and careers. Looking ahead, she is excited about where NASA is headed with its Space Launch System Program goals of sending humans deeper into space than ever before. Still a Picayune resident, Smith also remains committed to, and excited about, ongoing and emerging education opportunities. She urges NASA employees and contractors to join the effort by mentoring students interns. After all, she knows exactly what kind of doors such an experience can open.