



National Aeronautics and Space Administration



LAGNIAPPE

John C. Stennis Space Center

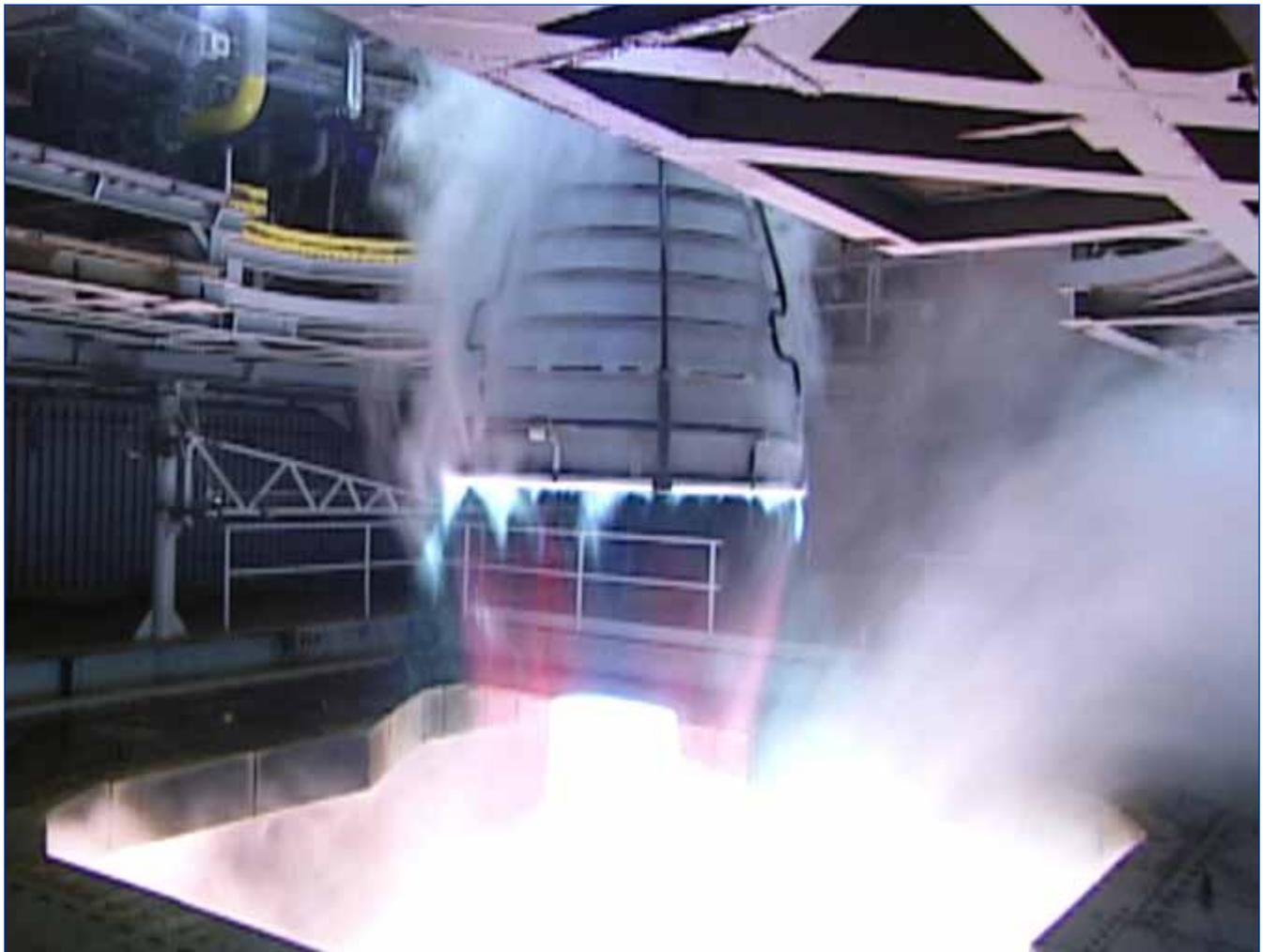
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A blazing start

(See pages 3-4)



Goal – \$195,500

To-date – \$174,695

(89.4% of goal)

*as of 1/14/15

“Stennis continues to be a great place to work, mainly due to the quality and caliber of you, our outstanding workforce.”



From the desk of
Rick Gilbrech

Director, Stennis Space Center

I hope everyone had an enjoyable holiday break and you were able to unwind, recharge and spend quality time with your families. We have another busy year ahead, but I always like to reflect on the past year and savor all the great accomplishments of our wonderful Stennis team. For the fourth year in a row, Stennis ranked first among the NASA field centers and fourth overall out of 315 agency subcomponents as Best Places to Work in the federal government. NASA topped the list for the third straight year in the large agency category, and two of our senior executives also had the honor of attending a special breakfast with President Obama last month where he recognized the achievements of federal senior leaders.

In our main line of business, we successfully executed 83 tests, exceeding 5,809 seconds of hotfire testing on six test stands for commercial and NASA customers. This included completing the J-2X engine test campaign on the A-2 Test Stand, utilizing the new NASA Data Acquisition System for the first time as the primary system. We also completed stand modifications on the A-1 Test Stand for RS-25 engine testing and installed the first RS-25 engine before the break. After the AJ26 engine failure at the E-1 Test Stand in May, the entire Stennis team pulled together to complete repairs in four months under a very aggressive timeline to support Orbital Sciences Corporation's launch planning. Unfortunately, the Orb-3 failure in October of the Antares launch vehicle brought a close to the AJ26 program, but we received high marks from our customer for the repair efforts. We continued support of the commercial RS-68 engine test program with three RS-68 engines propelling the Orion spacecraft on a very successful test flight in December. We completed Space Exploration Technologies Corporation (SpaceX) subscale injector testing at the E-3 Test Stand and will begin testing their pre-burner this year. The Applied

Sciences Program delivered on their commitments, and we also executed a center reorganization to better align for future success. In the construction arena, major modifications on the B-2 Test Stand progressed on schedule to support Space Launch System core-stage testing planned for late 2016/early 2017, and the high-pressure industrial water system A and B leg replacement efforts are on track.

We undertook three major contract recompetitions, including the joint Stennis Space Center/Michoud Assembly Facility test operations and facility contract, the laboratory services contract and our information technology services contract. The final application for expansion of our existing restricted airspace was submitted to the Federal Aviation Administration to support NASA, Department of Defense and other potential customers. At the National Center for Critical Information Processing and Storage, we completed the 32-megavolt amperes electrical infrastructure upgrades. We also realized \$43.4 million in center savings through efficiencies generated by our ever-conscious and innovative workforce. Throughout all of this, we maintained our safety culture with historically low safety incident rates and successfully secured Occupational Safety and Health Administration Voluntary Protection Program (VPP) Star Site recertification for the next five years.

Stennis continues to be a great place to work, mainly due to the quality and caliber of you, our outstanding workforce. I look forward to an exciting and challenging 2015. Happy New Year!

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RS-25 engine testing blazes forward for NASA's Space Launch System

The new year is off to a hot start for NASA's Space Launch System (SLS). The engine that will drive America's next great rocket to deep space blazed through its first successful test Jan. 9 at the agency's Stennis Space Center near Bay St. Louis, Mississippi.

The RS-25, formerly the space shuttle main engine, fired up for 500 seconds on the A-1 Test Stand at Stennis, providing NASA engineers critical data on the engine controller unit and inlet pressure conditions. This is the first hotfire of an RS-25 engine since the end of space shuttle main engine testing in 2009. Four RS-25 engines will power SLS on future missions, including to an asteroid and Mars.

"We've made modifications to the RS-25 to meet SLS specifications and will analyze and test a variety of conditions during the hotfire series," said Steve Wofford, manager of the SLS Liquid Engines Office at NASA's Marshall Space Flight Center in Huntsville, Alabama, where the SLS Program is managed. "The engines for SLS will encounter colder liquid oxygen temperatures than shuttle; greater inlet pressure due to the taller core stage liquid oxygen tank and higher vehicle acceleration; and more nozzle heating due to the four-engine configuration and their position in-plane with the SLS booster exhaust nozzles."

The engine controller unit, the "brain" of the engine, allows communication between the vehicle and the engine, relaying commands to the engine and transmitting data back to the vehicle. The controller also provides closed-loop management of the engine by regulating the thrust and fuel mixture ratio while monitoring the engine's health and status. The new controller will use updated hardware and software configured to operate with the new SLS avionics architecture.

"This first hotfire test of the RS-25 engine represents a significant effort on behalf of Stennis Space Center's A-1 test team," said Ronald Rigney, RS-25 project manager at Stennis. "Our technicians and engineers have been working diligently to design, modify and activate an extremely complex and capable facility in support of RS-25 engine testing."

Testing will resume in April after upgrades are completed on the high pressure industrial water system, which provides cool water for the test facility during a hotfire test. Eight tests, totaling 3,500 seconds, are planned for the current development engine. Another development engine later will undergo 10 tests, totaling 4,500 seconds. The second test series includes the first test of new flight controllers, known as green running.

The first flight test of the SLS will feature a configuration for a 70-metric-ton (77-ton) lift capacity and carry an uncrewed Orion spacecraft beyond low-Earth orbit to test the performance of the integrated system. As the SLS is upgraded, it will provide an unprecedented lift capability of 130 metric tons (143 tons) to enable missions even farther into our solar system.

For more information on SLS, visit: <http://www.nasa.gov/sls>.

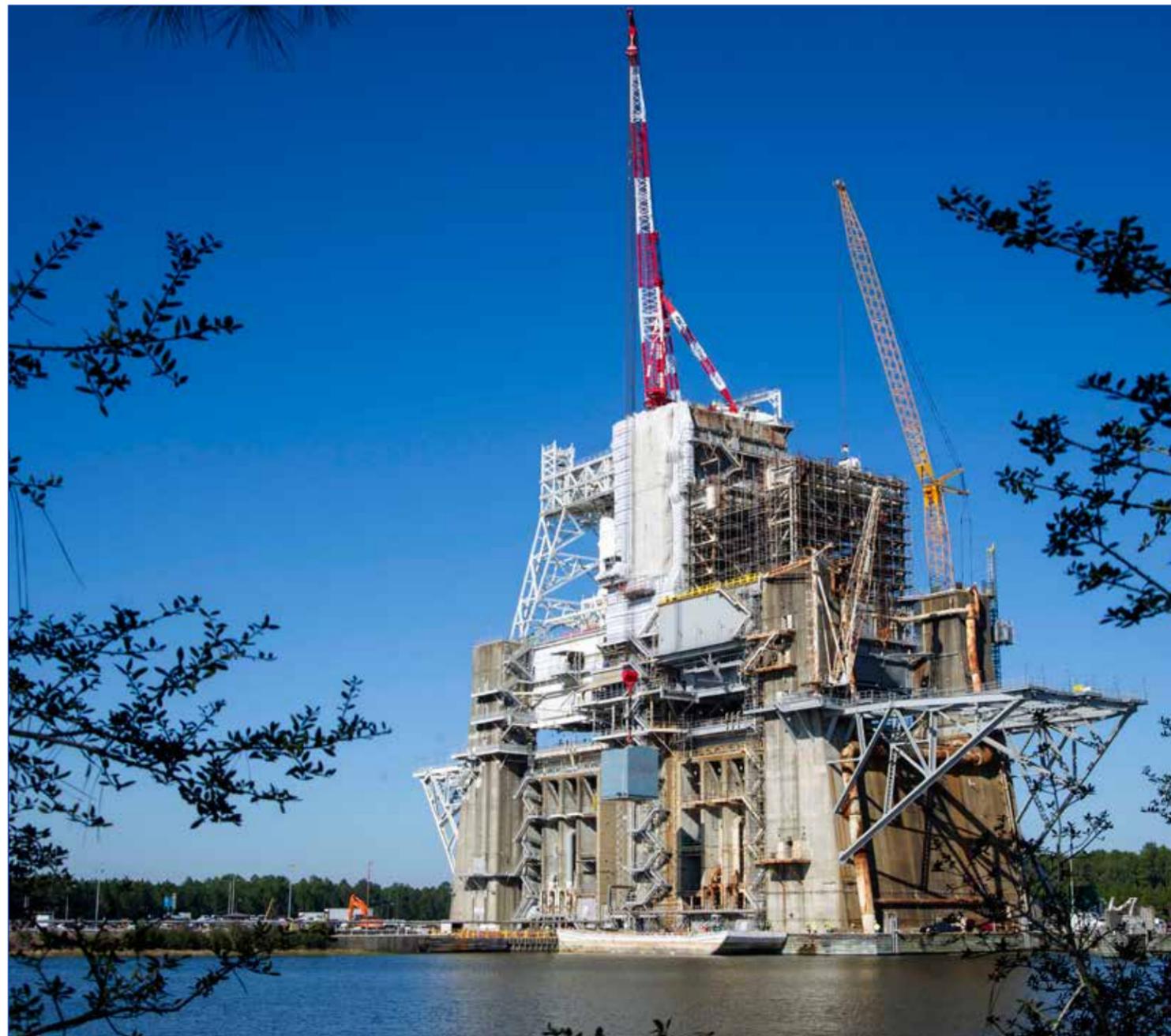
For more information on the RS-25, go to: <http://go.nasa.gov/1I2ZMx3>.

For a video of test, go to: <https://www.youtube.com/watch?v=hG8odscqf1f>.



The RS-25 engine that will drive NASA's new rocket, the Space Launch System, to deep space blazes through its first successful test Jan. 9. An inset image shows a closeup view of the engine on that stand.

FULFILLING NASA'S EXPLORATION MISSION



NASA commissions B-2 stand derrick crane for SLS testing

The new derrick crane atop the B-1/B-2 Test Stand at Stennis Space Center has been load tested and commissioned for operational use. Tests of the crane were conducted in the closing days of 2014; the commissioning is a major milestone in preparing the stand for testing the core stage of NASA's new Space Launch System (SLS). NASA is building the SLS to carry humans deeper into space than ever before. Beginning in late 2016/early 2017 at Stennis, the agency will test the core stage of the new launch vehicle, which is powered by four RS-25 rocket engines, modified versions of the same engines that powered the space shuttle. After testing is complete, the core stage will be used for the maiden, uncrewed flight of the SLS in 2018. Similar testing was conducted on Saturn stages for Apollo flights, including those that traveled to the moon. However, major modifications were needed to prepare the B-2 stand to test the new SLS stage. These included upgrading the derrick crane to lift the SLS core stage, which is almost 50 percent taller than the Saturn stages tested during the Apollo era, into place on the stand. In addition to strengthening the crane, the boom was extended 50 feet. With modifications in

place late last year, crews began checkout and calibration work on the crane. This included a series of lifts, culminating with lifts of a water-filled tank weighing 429,000 pounds (10 percent above rated capacity). Successful commissioning of the crane marked the final large task of the first of four stand modification work packages; the full package is scheduled for completion by the end of the month. The first work package focused on structural restoration elements and was awarded to Harry Pepper & Associates of Jacksonville, Fla. The second work package primarily focuses on replacement of fixed and movable platforms on the engine servicing deck and restoration of the booster support frame. That work is being performed by Sauer Inc. of Jacksonville, Fla., and is scheduled for completion in February. Work package No. 3 also was awarded to Harry Pepper & Associates, focusing on mechanical/piping and high voltage electrical restoration and beginning the structural buildout of the stand to accommodate the core stage. Its work items include construction of a new 100-foot superstructure for thrust takeout and access to the core stage. Completion is scheduled at the end of March. Work package No.

4, which was awarded in October 2014, will complete the mechanical/piping and high voltage electrical buildout activities. The construction contract for replacing the existing tarmac south of the test stand at the loading dock to accommodate barge offloading of the core stage transporter and insertion into the B-2 Test Stand will be awarded in late March. Modifications at Stennis' high-pressure industrial water plant to add a 25,000-gallons/minute pump to facilitate vibro-acoustic suppression during core stage testing is on track for completion in December. Activation of the stand is set to begin in early 2016. Once installed, NASA engineers will conduct three types of tests: modal tests to assess the structural vibration modes, tanking tests to verify prelaunch sequences for pressurizing stage systems and for filling and draining propellants, and hotfire tests that will involve the simultaneous firing of four RS-25 engines, just as will occur during an actual mission. NASA plans only one or two full tests since the stage is designed for a limited number of chillsdowns, including those related to prelaunch and launch activities.

FULFILLING NASA'S EXPLORATION MISSION

NASA in the News

NASA commercial partners hit milestones

NASA's Commercial Crew Program and the agency's industry partners completed 23 agreement and contract milestones in 2014 and participated in thousands of hours of technical review sessions. The sessions focused on creating a new generation of crew space transportation systems to low-Earth orbit destinations. "To say we've been busy would truly be an understatement," said Kathy Lueders, manager of the Commercial Crew Program. "Our partners at Blue Origin, Boeing, Sierra Nevada Corporation and SpaceX have made tremendous strides in their respective systems throughout the year and we're happy to have supported them along their way." NASA's goal for the Commercial Crew Program is to facilitate development of a U.S. commercial crew space transportation capability with the goal of achieving safe, reliable and cost-effective access to and from low-Earth orbit and the International Space Station. For more information about NASA's Commercial Crew Program, visit: <http://www.nasa.gov/commercialcrew>.

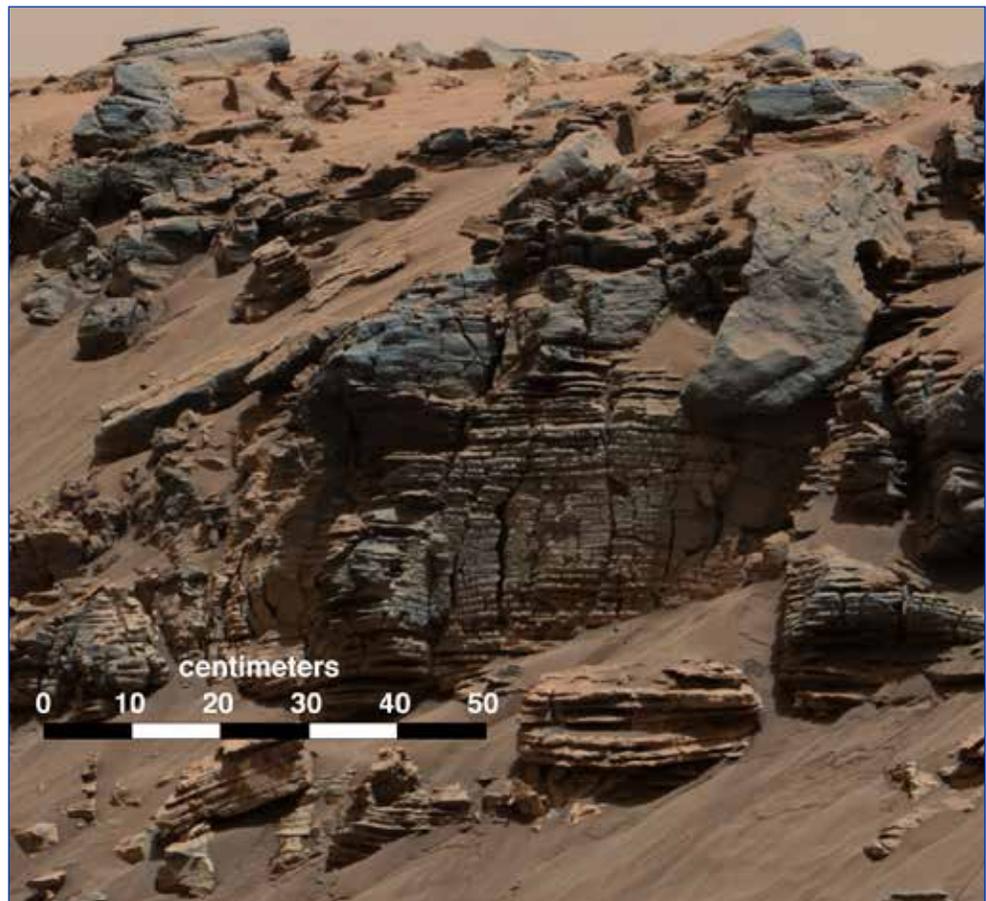
NASA marks 1,000th exoplanet discovery

How many stars like our sun host planets like our Earth? NASA's Kepler Space Telescope continuously monitored more than 150,000 stars beyond our solar system, and to date has offered scientists an assortment of more than 4,000 candidate planets for further study – the 1,000th of which was recently verified. Using Kepler data, scientists reached this millenary milestone after validating that eight more candidates spotted by the planet-hunting telescope are, in fact, planets. The Kepler team also has added another 554 candidates to the roll of potential planets, six of which are near-Earth-size and orbit in the habitable zone of stars similar to our sun. Three of the newly-validated planets are located in their distant suns' habitable zone, the range of distances from the host star where liquid water might exist on the surface of an orbiting planet. Of the three, two are likely made of rock, like Earth. For more information about the Kepler mission, visit: <http://www.nasa.gov/kepler>.

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

Curiosity finds sedimentary signs of Mars lakebed

This evenly layered rock photographed by the Mast Camera (Mastcam) on NASA's Curiosity Mars Rover shows a pattern typical of a lake-floor sedimentary deposit not far from where flowing water entered a lake. The scene combines multiple frames taken with Mastcam's right-eye camera on Aug. 7, 2014. It shows an outcrop at the edge of "Hidden Valley," seen from the valley floor. This view spans about 5 feet (1.5 meters) across in the foreground. The color has been approximately white-balanced to resemble how the scene would appear under daytime lighting conditions on Earth. A scale bar of 50 centimeters (about 20 inches) has been superimposed. This is an example of a thick-laminated, evenly-stratified rock type that forms stratigraphically beneath cross-bedded sandstones regarded as ancient river deposits. These rocks are interpreted to record sedimentation in a lake, as part of, or in front of, a delta, where plumes of river sediment settled out of the water column and onto the lake floor. For more regarding Curiosity, visit: <http://www.nasa.gov/msl> and <http://mars.jpl.nasa.gov/msl>.



NASA Advisory Council visits Stennis for tours, meetings

The NASA Advisory Council, an independent group of scientists and aerospace experts that advises agency leadership on a new era of exploration, held four days of meetings at Stennis Space Center on Jan. 12-15. NAC members are assisting NASA on its journey to Mars – a stepping stone approach to exploration that encompasses successful expansion of commercial cargo services to commercial crew, full utilization of the International Space Station until at least 2024, and development of new technologies to travel to an asteroid and the Red Planet. The full council held two days of meetings following sessions of its Human Exploration Operations Committee and Science Committee.

(Top left photo) NASA Administrator Charles Bolden speaks to NAC members during the Jan. 14 council session.

(Top right photo) Members of the NAC Human Exploration Operations Committee tour the B-2 Test Stand, which is being prepared for testing the core stage of NASA's new Space Launch System.

(Bottom left photo) Stennis Space Center Director Rick Gilbrech presents information about the rocket engine test site to NAC members.

(Bottom right photo) NAC members gather in front of the Roy S. Estess Building at Stennis. Pictured are: (l to r) Dianne Rauch, NAC executive director; Miles O'Brien, independent journalist; Kenneth Bowersox, retired U.S. Navy aviator and former astronaut; Marion Blakely, Aerospace Industries Association president and chief executive officer; Scott Hubbard, Stanford University aeronautics and astronautics professor; Tom Young, retired former director of NASA Goddard Space Flight Center; Rick Gilbrech, Stennis Space Center director; Steve Squyres, NAC chair and Cornell University professor of astronomy; Kathryn Schmoll, University Corporation for Atmospheric Research vice president; Wanda Austin, The Aerospace Corporation; and David McComas, Southwest Research Institute assistant vice president.



Test stand plaque memorializes NASA engineer

Stennis Space Center Director Rick Gilbrech stands with Myrna Sewell on the B-1 Test Stand during a dedication ceremony in memory of her son, NASA engineer Dale Sewell, who died in December 2013. A plaque was placed on the stand dedicating the liquid hydrogen run tank in Sewell's memory. Sewell served in a variety of capacities as an engineer at Stennis and was instrumental in guiding critical repair of the liquid hydrogen tank in 2012. Sewell coordinated all repair activities and managed the inspection, repair work and recertification of the entire project. He also worked to minimize delays to the RS-68 rocket engine test program conducted by Aerojet Rocketdyne on the stand. Gilbrech remembered Sewell as "a faithful friend and dependable coworker." The memorial plaque reads: Dedicated in honor of Dale L. Sewell, NASA Engineer, for his distinguished service to Stennis Space Center from 1997-2013 and his outstanding leadership and commitment that were vital to the repairs of this Liquid Hydrogen Tank in 2012.



Stennis observes Martin Luther King Day

Stennis Space Center Director Rick Gilbrech presents a plaque of appreciation to Minnijean Brown Trickey following her presentation at the 2015 Martin Luther King Jr. Day program at Stennis Space Center on Jan. 14. Trickey was one the "Little Rock Nine," nine African-American students who endured threats, harassment and violence as they desegregated Little Rock Central High School in Arkansas in 1957. During her presentation, she cited the social and historical importance of the event. "It's a beautiful story because it has so many lessons to teach us about how to be better people, ..." she said. "It's about nine kids, but it's also about a community and what it chooses to be, a nation and what it chooses to be."

Hail & Farewell

NASA bids farewell to the following

Clyde Dease	Lead, Facility Services Specialist	Center Operations Directorate
Richard Harris	Supervisory AST, Aerospace Experimental Facilities & Test Tech.	Center Operations Directorate
Michael Perotti	AST, Aerospace Engineer	Safety & Mission Assurance Directorate
Wendall Pigott	Budget Analyst	Office of the Chief Financial Officer
Jonathan Sill	Student Trainee	Safety & Mission Assurance Directorate

And welcomes the following:

Paul Farr	AST, Technical Management	Safety & Mission Assurance Directorate
Cheryl Lunt	Contract Specialist	Office of Procurement

1965 – A year of notable historical events

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 the south Mississippi rocket engine test center.

Fifty years ago, construction and preparations for the Saturn V engine stages were among a slew of happenings at the then-Mississippi Test Facility (MTF). January 1965 began a busy year with notable historical events at the site that is known today as the John C. Stennis Space Center. Historical events included:

- Operation of the world's only gas turbine tugboat, the Clermont, which was used in a variety of duties in connection with future space rocket static firings at MTF. It averaged 35 to 40 operating hours per week, pushing general purpose barges and an average of 12 cryogenic barges weekly. It also delivered second stages of the Saturn V space vehicle to test stands for static test-firing. The tugboat was a product of Southern Shipbuilding Corp. of Slidell, Louisiana. The main duties of the 69-foot-long vessel – operated by General Electric Co. (GE) support personnel – were to berth and tow space vehicles and cryogenics tanker barges through an inland canal system. MTF's Clermont was named during the 200th anniversary of the birth of Robert Fulton, who built the first successful steamboat, Clermont.

- Announcement of bids for the construction of two service buildings

– the vehicle storage and checkout building for the S-II stage of the Saturn V rocket and the service building for cryogenic barges (two buildings joined together). The S-II storage and checkout building was designed to receive and store rocket stages, prepare and check them out prior to test firing, perform minor rework and repackage them for shipment to Cape Kennedy in Florida. They included a horizontal storage area, a smaller maintenance area and a 126-foot high vertical checkout bay.



Members of the NASA Technical Services Office, now known as the Center Operations Directorate, advertise their moving date, January 20, 1965, from the Sone House to the newly constructed Building 1100.

The cryogenic barge service building served as the base of operations and protective maintenance shop for the fleet of liquid oxygen and liquid hydrogen barges serving the site.

- A request to NASA by Hancock County Superintendent of Education Robert F. Ladner for an extension for the removal of the Logtown School from the buffer zone in order to allow the school to operate in place until January 1966.

- Announcement of additional bids for the construction of a second test

position for testing Saturn first stages on the dual-position stand known today as the B-1/B-2 Test Stand. The work included erection of a structural steel tower about 106 feet high on the west pier, which was built under a separate contract. The new contract included a flame deflector, platform, piping systems, utilities, a steel instrumentation tower, concrete observation bunker and concrete pads and walks.

- Relocation of about 100 NASA and GE employees into the new Office and Administration Building (Building 1100), beginning the week of Jan. 19. The move was the opening of the test facility's first permanent office building. Only the north and south wings on the first floor of the three-story building were ready for occupancy that week, with the remainder to be completed during the next two months. The building occupancy rate accommodated 750 employees.

NASA personnel who moved into the north wing of the building were: Manager William C. Fortune and his staff and about 25 other NASA employees in the Plant Operations Division and Resources Management Division. In the south wing, about 70 GE employees included General Manager William R. Eaton and his staff, along with the plant services, office services, materials and logistics, contract operations, finance, communications and laboratories, and the technical library. A flag-raising ceremony was held Jan. 29 to mark the opening of Building 1100.

Office of Diversity and Equal Opportunity

Beware of assumptions that hinder diversity

The following article was submitted by Maggie Jones, deputy director of the Stennis Safety & Mission Assurance Directorate

Over the past few decades, the concept of diversity has moved from one of controversy to an accepted and valued aspect of a successful workforce. The success of this workforce, however, is highly dependent on capitalizing on the individual differences of each employee. The challenge continues to be fostering an environment that values diversity and allows for disparity of thought and opinion, while still maintaining a productive workforce.

By definition, an organization comprised of diverse employees contains many different backgrounds, ideas, belief systems and life experiences. Employees bring the culmination of their upbringing, cultural experiences, parents' beliefs, school environment, economic situation and all of the other experiences they have had in their lives to the workplace every morning. Because of these differences, the communication and motivation preferences can range significantly from person to person.

Just as schoolteachers strive to reach children who prefer many different learning styles, so must managers, leaders and co-workers strive to reach other employees who prefer many different communication styles. There are many tools and resources to assist in determining the preferences and personalities of people. Although these assessments and tools are useful, the most effective method of identifying the needs of any person is by asking him/her. People are generally grateful for the opportunity to share their preferences in how they prefer to communicate with the world around them.

There are many factors to consider in discovering the best method for interaction with any individual, but the most important factor is remembering that any specific way of speaking, working or solving a problem is not necessarily better or worse than any other. It is human nature to gravitate toward those who think and act the same. This tendency can lead to assumptions about those

who think and act differently. It requires a conscious decision to open oneself to accepting an opposing viewpoint or alternate solution.

A central idea that often undermines the ability of a leader to provide the workforce with what it needs to be successful is the concept that there is a right and a wrong way to accomplish something. This can lead to the sometimes unconscious conclusion that attitudes and behaviors other than one's own are inferior or not conducive to success. People commonly assume that others react and behave the same as themselves in a given situation. This assumption can cause a great deal of misunderstanding regarding an individual's motivation and attitude.

For example, one person experiencing a stressful situation in his/her personal life may act in a certain manner. Another observing this behavior may believe that person is upset about a recent difference of opinion in the workplace. By making an assumption that others react in the same way as themselves, the second

individual now has a misconception about the thoughts of the first. This can lead to a damaging reaction to the behavior.

Each person experiences their own motivations that drive their behavior. Taking the time to consider the various potential motivations of others and recognizing that they may not be the same as one's own can avoid a great deal of misunderstanding and conflict. It also opens the door to embracing the varying thoughts and ideas that comprise a truly diverse workforce.

The continued success of this workforce is dependent on deliberate actions to prevent preconceived ideas from hindering the ability to celebrate different types of thought and action and on capitalizing on the great achievements in diversity that have been accomplished thus far.



Stennis kicks off 2015 *FIRST*[®] Robotics season

Eighteen teams from Florida, Louisiana and Mississippi high schools traveled to Stennis Space Center on Jan. 3 for the kickoff of the 2015 *FIRST*[®] (For Inspiration and Recognition of Science and Technology) Robotics season.

Participants watched a broadcast from *FIRST*[®] headquarters in New Hampshire, featuring *FIRST*[®] founder Dean Kamen, to learn their 2015 competition challenge. Teams also received parts kits they will use to build robots for the challenge.

The competition seeks to inspire students to pursue careers in science, technology, engineering and mathematics (STEM). Teams are given identical parts kits and six weeks to build robots to compete in scheduled tournaments.

This year's "Recycle Rush" game will be played by two alliances of three robots each. Robots will score points by stacking totes on scoring platforms, capping the stacks with recycling containers and properly disposing of pool noodles, which represent litter. In keeping with the recycling theme of the game, all game pieces are reusable or recyclable by teams in their home locations or by *FIRST*[®] at the end of the season.

A description and information about the "Recycle Rush" game can be found online at the *FIRST*[®] website at: <http://tinyurl.com/73j3u3n>.

Over 120 students, mentors and officials visited Stennis for the kickoff, the 11th year that the rocket engine test facility has hosted the season-opening event. Nearly 75,000 high-school students on about 3,000 teams at 107 venues around the globe joined the 2015 kickoff via a live Comcast NBCUniversal broadcast. In a video message, Kamen emphasized: "*FIRST* is more than robots. The robots are a vehicle for students to learn important life skills."



(Top photo) Students attending the kickoff of the 2015 *FIRST*[®] (For Inspiration and Recognition of Science and Technology) Robotics season at Stennis Space Center on Jan. 3 view a video message from NASA Administrator Charles Bolden.

(Bottom photo) Members of a Mississippi robotics team load up the parts kits that will be used to build robots to compete in regional tournaments.

NASA and Stennis Space Center support *FIRST*[®] Robotics Competition with mentors, volunteers and contributions. Interested mentors should call Cheri Bennett at 228-688-3802 or email cheri.bennett@nasa.gov. The 2015 Bayou Regional *FIRST*[®] Robotics Competition is scheduled at

the Pontchartrain Center in Kenner, Louisiana, on March 18-21.

For information about *FIRST*[®] Robotics, visit: <http://www.usfirst.org>. For information about the Bayou Regional competition, visit: <http://www.frcbayouregional.com>.

Stennis hosts area students for Summer of Innovation celebration

Some 500 middle school students from Louisiana and Mississippi and their families gathered at INFINITY Science Center on Jan. 10 to celebrate the culmination of NASA's four-year Summer of Innovation focus.

The space agency launched the Summer of Innovation initiative in 2010 in response to the national need for improvement in STEM (science, technology, engineering and mathematics) education. Students visiting INFINITY participated in STEM-related activities, including the Rockets to the Rescue! challenge that was the 2014 theme of the initiative.

"The need to engage students in STEM fields is well documented, and Stennis is committed to help meet that need," Stennis Education Director Katrina Emery said. "The students we reach today are the engineers and scientists who will lead us tomorrow."

During summer school breaks over the last four years, NASA educators at Stennis worked with home schools, 4-H clubs, Boys and Girls Clubs, science centers and youth institutes in Louisiana and Mississippi to provide STEM-related materials and activities. Stennis educators hosted family activity days and summer day camps, which provided students the chance to engage in interactive learning and to dialogue with NASA experts in various fields. Each summer's activities focused on a chosen theme.

On Jan. 10, students engaged in the final Summer of Innovation theme challenge, which was the 4-H National Youth Science Day focus in the wake of various natural disasters. The challenge called on students to design and build aerodynamic transportation devices to deliver food payloads to disaster victims. Students designed model rockets and estimated the angle and trajectory needed for successful launches. They then launched their rockets to deliver payload to target areas. Students compiled data and observations to discuss how they could apply to real-life engineering problems.

In addition, students attending the event had a chance to participate in hands-on learning activities about the use of polymers, the life cycle of a star, the effects of ultraviolet rays and how propulsion systems work. The schedule also featured cryogenic demonstrations and bus tours of rocket engine test facilities at Stennis Space Center.

Louisiana participants included students from the Little Oak Middle School STEM Program in Slidell, the Magnolia School of Excellence 4-H Club in Shreveport, Sci-Port Louisiana Science Center in Shreveport, the St. Helena Parish 4-H Club in Greensburg, Adventures in Homeschooling in Lafayette, NOLA Homeschool and the New Orleans East Library.

Mississippi participants included students from the Boys' and Girls' Clubs in Booneville and the Mississippi Gulf Coast, the Magnolia State Home Educators of Gulfport, and the Pearl River County Robotics 4-H Club in Poplarville.



(Top left photo) Stennis Space Center Education Director Katrina Emery talks to students participating in a Summer of Innovation celebration at INFINITY Science Center on Jan. 10. The celebration attracted some 500 students from Louisiana and Mississippi. It marked the culmination of NASA's four-year Summer of Innovation initiative to engage students in STEM (science, technology, engineering and mathematics) studies.

(Bottom left photo) A young student launches an aerodynamic Food Transportation Device as part of a Rockets to the Rescue! activity.

(Top right photo) A pair of area students enjoy a visit with Orbie, the inflatable astronaut that serves as the Stennis Space Center mascot.

(Bottom right photo) A Stennis volunteer helps a young student complete a rocket transportation activity during the Summer of Innovation celebration Jan. 10. Participants use balloons in the activity to learn fundamentals of rocket propulsion.

