



LAGNIAPPE

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Robert Cabana
SSC Center Director

New SSC director

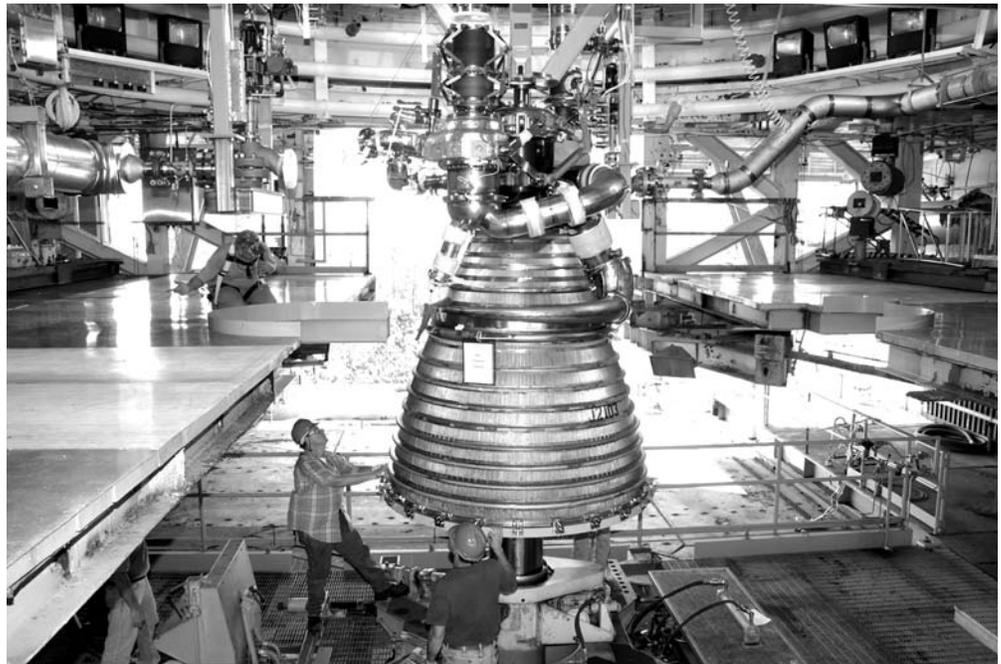
Robert Cabana, former astronaut and deputy director at NASA's Johnson Space Center in Texas, took over as director of Stennis Space Center on Sept. 30.

A native of Minneapolis, Minn., Cabana is a 1971 graduate of the U.S. Naval Academy, and is a former U.S. Marine Corps officer and naval test pilot.

He has flown four space shuttle missions, serving as pilot on STS-41 and STS-53, and as commander on STS-65 and STS-88.

Cabana succeeds Richard Gilbrech, who was named associate administrator for NASA's Exploration Systems Mission Directorate.

Powerpack set to test



Core components of the J-2X engine being designed for NASA's Constellation Program are installed on the A-1 Test Stand at NASA's Stennis Space Center. Tests of the components, known as Powerpack 1A, will be conducted from November 2007 through February 2008. The Powerpack 1A test article consists of a gas generator and engine turbopumps originally developed for the Apollo Program that put Americans on the moon in the late 1960s and early 1970s. Engineers are testing these heritage components to obtain data that will help them modify the machinery to meet the higher performance requirements of the Ares I and Ares V launch vehicles. NASA is developing these rockets to carry humans and cargo to space in the next decade.

Component installed on A-1 Test Stand

Stennis Space Center marked a milestone in the development of NASA's J-2X engine when Powerpack 1A was installed on SSC's A-1 Test Stand in mid-September. The installation in the newly-modified test stand prepares the way for a series of 12 tests on the J-2X components beginning in November.

"This is an important milestone for several

reasons," said Gary Benton, project manager for J-2X testing at SSC. "This is the first full-scale test article to be installed on the test stand recently transferred to the Constellation Program, and it's critical to make sure we provide the data on the powerpack turbomachinery to meet the J-2X engine's design needs.

"And our machine and weld shops have fabricated several portions of the powerpack test article," Benton said. "We're wait-

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From the desk of
Robert Cabana
 Director,
 Stennis Space Center



First off, let me say how pleased and honored I am to have been asked to lead the Stennis Space Center into the future. As Sen. Lott pointed out at the groundbreaking for the A-3 Test Stand in August, the road to Mars goes through Hancock County, Mississippi. We have a tremendous challenge in front of us and from what I've seen, this team is up to it.

Oct. 4, 2007, marked a historic anniversary: 50 years of space flight. It was 50 years ago that the Soviet Union launched the first man-made satellite, Sputnik, into orbit around the earth and the space race began.

As a small boy growing up in Minnesota, I never dreamed that event would eventually lead to me training and flying in space with Russian cosmonauts assembling the International Space Station. We've come a long ways in 50 years, but we have so much farther to go.

Space exploration is critical to our future as a nation. The space program challenges and motivates us. It binds us together and causes us to reach a little higher. It's our destiny to explore, to learn and to reach beyond our known world.

The space program expands our horizons, it makes life a little better for everyone on Earth and it prepares us to cope with the unknowns that the future holds for us. We are only limited by our imagination and our desire and resolve to accomplish the goals we set for

ourselves.

Mike Griffin's speech on "The Space Economy" states the importance of what we're doing for the future of our nation far better than I can:

"Economic growth is driven by technological innovation. Societies that foster it lead the pack, while others lag behind. The exploration and exploitation of the space frontier is one of the factors that drives technological innovation. The half a cent of the federal budget dollar spent on NASA has resulted in today's \$180 billion Space Economy.

"If America is to remain a leader in the face of burgeoning global competition, we must continue to innovate, and we must continue to innovate in space. Reaching for the unknown, making our lives bigger and our horizons broader, achieving things never before possible, are the heart and soul of what we do at NASA.

"By pushing beyond the frontier, by setting for ourselves seemingly impossible challenges, we are transforming our lives for the better here on Earth even as we explore new worlds in space. At NASA we are making the future happen – now."

We are so fortunate to have the opportunity to play a critical role in this great adventure called space exploration. Working together, I know we can meet all the challenges that lie ahead of us and more, as we pave the way on the road through Hancock County, and into the future.

Keep charging ahead.

Key Sen. Lott staff member briefed on applied sciences

Mark Glorioso (second from left), director of the Applied Research and Technology Project Office at Stennis Space Center, and Dr. Teresa Fryberger (second from right), associate director of Applied Sciences from the Science Mission Directorate at NASA Headquarters, met on Capitol Hill Sept. 21 with Jim Sartucci (center), legislative director for the Washington, D.C., office of Sen. Trent Lott. The purpose of the visit was to brief Sartucci about changes in the focus of SSC's applied research efforts. They were joined by Mike Freilich (left), director of NASA's Earth Science Division, Science Mission Directorate, and Eric Perritt (right), NASA Legislative Fellow, office of Sen. Thad Cochran.



FULFILLING NASA'S EXPLORATION MISSION

A-3 diffuser testing clears first hurdle

Tests begun at Stennis Space Center's E-3 Test Facility on Sept. 13 evaluated a liquid oxygen lead (lower right) for engine start performance, part of the A-3 Test Facility Subscale Diffuser Risk Mitigation Project.

Phase 1 of the subscale diffuser project, completed Sept. 24, was a series of 18 hot-fire tests using a 1,000-pound liquid oxygen and gaseous hydrogen thruster to verify maximum duration and repeatability for steam generation supporting the A-3 Test Stand's design and construction.

The thruster will also be modified as a stand-in for NASA's developing J-2X engine, to validate a 6 percent scale version of A-3's exhaust diffuser. Testing the J-2X at altitude conditions requires an enormous diffuser. Engineers will generate nearly 4,600 pounds per second of steam to reduce pressure inside A-3's test cell to simulate altitude conditions.

A-3's exhaust diffuser must withstand regulated pressure, temperatures and



the safe discharge of the steam produced during those tests. Before the actual diffuser is built, engineers hope to work out any issues on the miniature version.

Phase 2 testing is set to begin this month.



SETTING THE STAGE – Pilings continue to go in the ground at the site of Stennis Space Center's future A-3 Test Stand. The first piling for the foundation of SSC's future A-3 Test Stand was driven Sept. 12. IKBI Construction Co. and its subcontractor have 150 days to put 428 of the 100-foot-long steel foundation beams in place, along with reinforced steel and concrete that will top the pilings to form A-3's foundation.



A-3 foundation begins

Work at the site of SSC's future A-3 Test Stand continues to progress on schedule, according to Lonnie Dutreix, NASA's A-3 project manager.

Workers with IKBI Construction Co. and its subcontractor, H.H. Jordan Construction Co., drove the first pilings for the test stand's concrete foundation Sept. 12. In all, the main foundation will require 428 steel beams. Outlying structures such as propellant tanks and the stand's enormous horizontal exhaust diffuser will require additional pilings. The construction contractors have until February 2008 to finish that phase of work. Then, reinforced steel will top the piling bed in preparation for the concrete foundation.

The dirt work at the site is complete. Excavations for the test stand's supporting docks and waterways – set to begin in January or February – will be the next visible change to the A Complex landscape. Dutreix said the next major step in A-3's construction process will be to contract a fabricator for the stand's structural steel.



SSC bids farewell to Director Richard Gilbrech

A farewell reception for former Stennis Space Center Director Richard Gilbrech was held Sept. 20 in Stennis Space Center's Logtown Conference Room. Gilbrech's family (above) – his wife, Shelly, and sons Ryan, left, and Brandon – joined the celebration. NASA employees from across the agency attended the reception, including Glenn Research Center Deputy Director Ray Lugo (left, in top right photo) and Randy Galloway, director of SSC's Engineering and Science Directorate. At right, Gilbrech shares a laugh with Bartt Hebert, chief engineer in the Engineering and Science Directorate. Gilbrech now serves as associate administrator for the Exploration Systems Mission Directorate, leading NASA's development of the next generation of spacecraft to return astronauts to the moon and eventually journey to Mars.



'Smart' badges help safeguard IT

Identity theft is the nation's fastest growing crime. And it's one of several reasons why NASA is issuing new badges. Another reason: it is the law.

President Bush signed the Homeland Security Presidential Directive 12, "Policy for a Common Identification Standard for Federal Employees and Contractors" on Aug. 27, 2004. It calls for all government agencies to implement a uniform identification system.

This new "smart card" system will help deter identity fraud, tampering, counterfeiting and terrorist exploitation. The directive includes contractor employees and grantees – anyone who has access to NASA facilities and information technology systems.

With about 80,000 NASA employees and contractors who need new badges, the project is no simple mission. Three phases are involved in implementing the presidential directive: appropriate background investigation, enrollment and issuance. As an agency, NASA has completed 100 percent of the HSPD-12 requirements for the investigation phase with civil servants, and nearly 85 percent with contractors.

Enrollment requires proving employees' identities and taking fingerprints. Over 70 percent of those who need new badges are now entered in the Personal Identity Verification system and are ready to have their badging data collected, i.e., enrolled. So far, NASA's total enrollments for new badges have topped the 17,000 mark.

A similar form of identification has already proven beneficial in another government agency. The Department of Defense has seen a dramatic 46 percent drop in network intrusions.

NASA's new badges will have a computer chip holding an employee's digital certificate but no personal information, and will be the means to physical access into buildings.

For higher risk areas and IT systems, a "two-factor" system will be used, where access requires a "smart" badge and a personal identification number.

"We're doing this to benefit NASA, our employees and the research and information we develop and use," said Walter Hussey, project director for HSPD-12.

Discovery, cargo ready for launch

On Sept. 30, Space Shuttle Discovery arrived at Launch Pad 39A at NASA's Kennedy Space Center.

Stennis Space Center tested the orbiter's three main engines, which will power Discovery into low-Earth orbit. Main Engine 1, No. 2050, was last tested at SSC March 23, 2001; Main Engine 2, No. 2048, was last tested at SSC Aug. 14, 2001; and Main Engine 3, No. 2058, last tested at SSC March 16, 2006.

The payload canister containing the Italian-built U.S. Harmony module to be delivered during the 14-day mission to the International Space Station has been installed in Discovery's cargo bay.



Discovery's crew members are Commander Pam Melroy, Pilot George Zamka and mission specialists Scott Parazynski, Stephanie Wilson, Doug Wheelock, Daniel Tani and Paolo Nespoli of the European Space

Agency. Tani will remain aboard the station and return with the STS-122 crew, targeted to launch Dec. 6. Current station Flight Engineer Clayton Anderson will return to Earth aboard Discovery.

POWERPACK

Continued from Page 1

ing on a final piece: a hot-gas collection or discharge duct being custom-built here in SSC's shops. Pratt & Whitney Rocketdyne could've contracted that work out to anyone in the country, but they asked our shops to fabricate it. It's a real testament to the quality and punctuality of their work. They took on this extra work and are getting it done on schedule. They're doing a great job."

A facility readiness review in September cleared the powerpack for installation on the A-1 Test Stand. The NASA-contractor J-2X team will perform "chill-down" tests to verify the performance of the A-1 facility and instrumentation, and the integrity of the test article when liquid hydrogen and liquid oxygen flow through the powerpack turbopumps, giving engineers the confidence they need to commence with sequence start tests.

"We don't have a complete J-2X engine," Benton said. "Since the turbomachinery is a critical part of the engine, we need to get

the data on it to make sure it operates as predicted."

A-1 has been undergoing modifications to prepare for the powerpack testing since November 2006, when it was officially transferred to NASA's Constellation Program. The developing J-2X engine will propel the upper stages of the Constellation Program's Ares I crew launch vehicle and Ares V cargo launch vehicle that will take America back to the moon and beyond.

The most recent modifications to A-1 included cutting the deck hole needed to fit the powerpack, and extending pipes and ducts that feed the fuel and oxidizer through the facility to the test article.

While the testing team anticipates the first "chill-down" test scheduled for Nov. 20, technicians on the test stand are busy loading and checking software; connecting A-1's instrumentation, power, wiring, purge tubing and controls to the test article; performing leak and function checks; and connecting the test article and its controller to the facility computer, Benton said.

Energy Awareness Day at SSC

Stennis Space Center will observe Energy Awareness Day on Oct. 25. From 10 a.m. to 2 p.m., representatives from the Mississippi Development Authority's Energy Division, Mississippi Power Co. and others will be in the Building 1100 Atrium distributing information on reducing energy costs, and will hold demonstrations and pass out reminders to conserve energy.

For information on Energy Awareness Day activities, contact Missy Ferguson at 688-1067 or Donald Thompson at 688-1641; or visit the Energy Conservation Web page at <http://sscportal/centers/ra02/services/>.

October: Disability Awareness

In 1988, the U.S. Congress designated October National Disability Employment Awareness Month in an effort to increase public awareness of the skills and contributions of American employees with disabilities.

Our society is learning to welcome people with disabilities into mainstream as productive individuals. You don't have to feel awkward when dealing with a person who has a disability. If you are ever unsure, just ask! But the following tips should help.

From the
**Office of
Diversity
and Equal
Opportunity**

Disability Etiquette

- Be yourself.
- When you meet someone, extend your hand to shake. A person who cannot shake hands will let you know. If you are meeting a blind person, identify yourself.
- Do not automatically give assistance; ask first if the person wants help.
- Talk directly to the person, not to an aide, friend or interpreter.
- Do not leave a person with a disability out of a conversation or activity. Include him or her as you would anyone else.
- Treat the person as an individual. Don't treat the person as a disability.
- Be sensitive about the setting. Some environments can be more difficult for people disabilities.
- Do not pet guide dogs or touch a person with a disability unless there is a good reason (such as shaking hands).
- Learn more about the disability to alleviate fears and allow the person to be seen for they are. Remember we are all complex human beings; a disability is just one aspect of a person.



International Festival draws diverse crowd



'WE ARE SIMILAR... WE ARE DIFFERENT... WE ARE STENNIS' was the theme of Stennis Space Center's Diversity and International Festival held Oct. 3 in and around Building 1100. Cultural and civic groups visited SSC to help highlight the site's diversity and represent cultures from around the world. Several groups performed, including dancers from the Mississippi Band of Choctaw Indians (top photo). Celtic and Balkan musicians demonstrated their instruments; cloggers and a bluegrass band also performed. An opening ceremony featured music by the New Orleans Naval Air Station Band (above left photo), the presentation of colors by the Picayune (Miss.) Memorial High School Color Guard, and comments by SSC Associate Director Patrick Scheuermann and Capt. David W. Titley, chief of staff, Naval Meteorology and Oceanography Command. Thirty different groups or individuals set up booths in the Building 1100 Atrium, where they offered ethnic food for tasting, handed out informational brochures or displayed arts and crafts of their cultures. Delia Hernandez (left, in bottom photo) of Slidell, La., shows SSC employee Keely Keyser (right) crafts of the Huichol tribe, from Mexico's State of Nayarit. Narda Inchausti (left, in photo above), wearing the native costume of the Department of Potosi, Bolivia, and Hernandez represent Slidell's Foreign Born Wives Club. Guest speakers made presentations in the Gainesville Conference Room on topics ranging from Islam to aging. In addition to NASA and CNMOC, the festival was sponsored by NASA Shared Services Center, Naval Oceanographic Office, Computer Sciences Corp., Pratt & Whitney Rocketdyne, Lockheed Martin, Jacobs Technology, Applied Geo Technologies, National Oceanographic and Atmospheric Administration, Rotary International, Science Applications International Corp. and the U.S. Geological Survey.

War brought woes to Hancock County

Editor's Note: *Dr. Marco Giardino of SSC's Engineering and Science Directorate provides this column dedicated to the history of Stennis Space Center and the surrounding area.*

The hardship caused by the Civil War dominates the wartime correspondence between Annette Koch and her husband Christian. Earlier articles in this series introduced readers to the Denmark natives who owned the Bogue Homa Plantation at Logtown, now part of SSC's buffer zone. The Koch Collection of letters are housed at Louisiana State University's Hill Memorial Library.

In her letter to Christian dated April 29, 1863, Annette discussed the issue of desertions. She related Elers' (the couple's oldest son) statement that officers were very strict and there were many desertions. She also mentioned the subject of conscript substitutes. She told Christian that Sam Favre had put in a substitute, and Luther's substitute was dead. Favre, she said, "is a mean man and not to be trusted, but how many since this war began we have found out to be two-faced."

Stennis Space Center HISTORY

She then advised her husband that, since he was so apt to tell the truth, he should be silent. She told him the Yankees had burned all the schooners on Mulatto Bioue [sic]. They had done much damage to Gainesville and "nearly broke Poitevent up, Monette also and some other families. There is talk that the government will take all the cattle, they put price down to 10 cents pound and if not ok, government will take anyway."

Annette described a litany of problems: merchants would not take Confederate dollars; trees were hard to find and birds had caused the corn to need replanting four times. She had tried unsuccessfully to forestall an infestation of worms by spraying pepper tea, and the hogs had filled the place with fleas.

Despite these problems, the family managed to convey some pleasant news. On April 24, Christian's daughter Laurentze, then age 17, wrote to her father that roses covered the trees. She proudly told him she had "fixed up the school house garden again," and she was teaching school. She had learned the song "Prairie Flower" to sing to her father.

AROUND NASA

■ **Applications open for new astronauts:** NASA is accepting applications for the 2009 Astronaut Candidate Class. Candidates must have a bachelor's degree in engineering, science or math and three years of relevant professional experience. After a six-month period of evaluation and interviews, NASA will announce final selections in early 2009. Astronaut candidates will report to Johnson Space Center in summer 2009 to begin the basic training program. NASA will accept applications through July 1, 2008. To apply visit: <http://www.usajobs.gov>. For information, call the Astronaut Selection Office at 281-483-5907 or visit: <http://www.nasa.gov/astronauts/recruit.html>.

■ **Dale unveils 50th anniversary logo:** Deputy Administrator Shana Dale unveiled on Sept. 13 the agency's anniversary logo in a ceremony at WIRED Magazine's annual NextFest in Los Angeles. NASA's "birthday" is Oct. 1, 1958. A four-day festival of products and technologies that are transforming our world, WIRED NextFest features the latest innovations in products and technologies in areas where NASA plays a leading role.



■ **IMAX will film life story of Hubble:** IMAX Corp. and Warner Bros. Pictures announced Sept. 24 that, in cooperation with NASA, the IMAX 3-D camera will return to space in 2008 aboard the space shuttle for production of a new film. Set for release in early 2010, IMAX will chronicle the life story of the Hubble Space Telescope. The IMAX 3-D camera made its first voyage into space in 2001 for the production of "Space Station 3-D." The space shuttle's Hubble servicing mission, STS-125, is an 11-day flight. Using the shuttle's mechanical arm, the telescope will be placed on a work platform in the cargo bay.

■ **NASA debuts video of total solar eclipse:** NASA Television began Sept. 21 airing footage documenting a science expedition to Tripoli and the Sahara Desert that studied a total solar eclipse. The international mission was an unprecedented collaboration with Libyan scientists and researchers from around the globe. The March 29, 2006, eclipse lasted more than four minutes at the center of its path. Most total solar eclipses last two minutes or less. Total solar eclipses interest astronomers because they are the only time the sun's corona can be seen from the Earth's surface. The video will be broadcast on NASA TV and NASA's Web site. To view the video and get NASA TV downlink and schedule information, visit: <http://www.nasa.gov/ntv>.

Hail & Farewell

NASA bids farewell to the following:

Dr. Richard Gilbrech NASA SSC Director

And welcomes the following:

Robert Cabana NASA SSC Director

Duane Armstrong lead, application & technology development
Engineering and Science Directorate

John Pazos AST, flight systems test

Engineering and Science Directorate

FIRST LEGO kickoff



Randall Hicks (right), Jacobs Technology's education services manager at NASA John C. Stennis Space Center, answers questions about the playing field for FIRST (For Inspiration and Recognition of Science and Technology) LEGO League's 2007 Challenge, 'Power Puzzle.' More than 140 team members from 15 Mississippi and Alabama schools attended the Sept. 15 FLL season kickoff at SSC's visitor center, StenniSphere. Using LEGO Mindstorms NXT kits, FLL teams of children ages 9-14 will build and program robots to perform 'Power Puzzle's' tasks. They will battle their robots and present a research project at the Dec. 8 Mississippi Championship Tournament at Mississippi Gulf Coast Community College. NASA recognizes FIRST activities as an excellent hands-on way to increase student knowledge of science, engineering, technology and mathematics. In photo at left, Gulfport High School Team Fusion members Ryan Nazaretian and Ian Stewart demonstrate a robot from a past FIRST Robotics competition. Team Fusion modified its robot to shoot T-shirts at events like the FLL kickoff.



'Space Exploration' exhibit tours Mississippi

Students at the University of Mississippi's School of Engineering await their turn to visit NASA's interactive exhibit highlighting America's plans for opening the space frontier. NASA's 'Vision for Space Exploration Experience' traveling exhibit is intended to give visitors a vivid glimpse into the nation's ambitious future in space. During the three-city tour of Mississippi from Sept. 20 through Oct. 3, approximately 4,450 visitors experienced the free exhibit. In addition to Ole Miss, the Mississippi tour included stops at the state Museum of Natural Science in Jackson, and the University of Southern Mississippi's science and math and astronomy departments in Hattiesburg.

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