National Aeronautics and Space Administration

John C. Stennis Space Center

LAGNIAPPE

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1975-2009

An era of space shuttle main engine testing excellence

See special coverage inside

NASA administrator, deputy take the helm

Charles Frank Bolden Jr. was confirmed by the U.S. Senate on July 15 as the 12th administrator of the National Aeronautics and Space Administration. Lori Beth Garver was confirmed as NASA's deputy administrator.

The confirmation of Bolden for NASA's top spot marks his second stint with the agency. Beginning in 1980, he served 14 years as a member of NASA's Astronaut Office. Bolden traveled into orbit four times aboard the space shuttle, serving as commander for two of those missions.

Bolden

Garver also previously worked for NASA. Her first stint at the space agency was from 1996 to 2001, when she served in several positions, including as associate administrator for the Office of Policy and Plans.

Garver

From the desk of

Gene Goldman

Director
Stennis Space Center

"You don't have to work, you want to live like a king, but the big bad world doesn't owe you a thing"

(The Eagles, "Get Over It," 1994)

July was quite a month. The nation celebrated the 40th anniversary of the Apollo 11 landing with extensive, positive media coverage. At home, we held the last planned test of a Space Shuttle Main Engine (SSME) with some of our own family legends and visitors from across the agency. On a beautiful day we had an awesome test: "full duration; no fids" (failure identifications) in engine parlance. Yes, it was quite a month.

We're in afterglow now as an era passes. The SSME test program lasted 34 years, a career in itself for many people. Prior to the test, former Director Roy Estess was telling me of the efforts associated with bringing that program here. It was a huge success to get another major test program following Apollo, something many today may find strange. Times are different now, I hope. The center has evolved in many ways with other tenants, a science program, as well as commercial and development test programs. These all expand our role and reach, but our major function remains propulsion testing. It's why we're here. It's why we must strive to excel.

The SSME program is a tremendous legacy for Stennis. It has given me indelible memories of both accomplishments and major failures. I've seen pictures of a destroyed engine in the flume, and the molten metal that remained of internals following a failure within 0.6 seconds of ignition. "All progress is gained through mistakes and their rectification," Ghandi said. True for life and engine development. This engine is still state of the art and at the edge of material capability. It is an amazing machine. It was tested by amazing people.

We're preparing for the third generation, Constellation. Its history, as the Apollo and Space Shuttle programs before, depends on our initiative, ingenuity and energy. It will take all we have to offer, once again, to assure safety and success of this program for the center, agency and country. In John F. Kennedy's words, "In your hands, ... more than mine, will rest the final success or failure of our course."

Dream big; work harder!!

Louisiana first lady views historic test

(Left photo) Louisiana first lady Supriya Jindal and her children (l to r), Selia, Slade and Shaan were among the guests for the last planned space shuttle main engine test at Stennis Space Center on July 29.

(Right photo) Stennis Space Center Director Gene Goldman visits with Jindal during the July 29 space shuttle main engine test. Jindal's husband, Bobby, was elected governor of Louisiana in 2007.

FULFILLING NASA'S EXPLORATION MISSION

A-3 construction marks milestone

NASA's John C. Stennis Space Center marked another milestone in construction of its new rocket engine test stand with completion of a pair of transfer docks July 2.

The docks allow fuel barges to deliver propellants (or fuels) to the A-3 Test Stand via Stennis' seven-and-one-half-mile canal system, which connects the rocket engine test site to the Pearl River. From the docks, liquid oxygen and liquid hydrogen will be loaded into run tanks and used to conduct engine tests. The docks also are outfitted to allow for direct liquid transfer during a test.

Workers conducted a July 9 test of the pin anchoring systems used to secure barges at the docks while liquid fuels are transferred. The anchoring systems hold barges in place while allowing them to float up and down as needed.

"Until you actually put a barge into position, you cannot be sure that everything will fit," said Andrew "Bo" Clarke, the contracting officer's technical representative for the A-3 project. "It was a great relief to see the barges fit perfectly at each of the stations."

IKBI Inc., of Choctaw, Miss., was contractor for the dock construction, an $8.3 million project that took six months to complete. The docks basically are copies of those used at the other test stands on site.

A fuel barge pulls up to a new A-3 Test Stand transfer dock during a July 9 test of the structure's pin anchoring system.

Completion of the docks is another sign of progress in construction of the A-3 Test Stand. On April 9, workers concluded structural steel work at the site. With work on basic stand facilities wrapping up, the focus turns to outfitting the stand, Clarke said.

"Contracts for the stand's test cell and diffuser and for general construction work are in place, and the contractors are gearing up," he reported. "They will install the working parts to the test structure and make it ready to activate."

The A-3 stand is the first large test structure to be built at Stennis since the 1960s. It will be used to provide high-altitude testing of the J-2X engine, which is being built to help carry humans back to the moon as part of NASA's Constellation Program.

New thrust measurement system arrives at A-1 stand

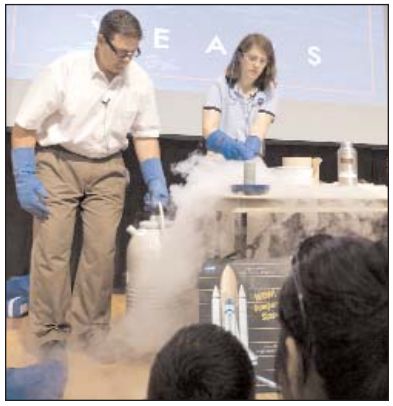
Workers unload a new thrust measurement system July 17 to be placed on the A-1 Test Stand at Stennis Space Center. The system represents an upgrade from original equipment installed more than 40 years ago. The 102,000-pound system was fabricated by Force Measurement Systems in Illinois at a cost of about $3.5 million. It is an advanced calibration system capable of measuring vertical and horizontal thrust loads with an accuracy within 0.15 percent at 255,000 pounds. That will allow engineers to measure thrust as they gimbal (or tilt) engines during tests. Work is under way to replace the thrust takeout structure at the A-1 stand. When that work is completed, the new thrust measurement system will be installed, likely in late 2009. The A-1 stand is being modified to test the new J-2X engine that will help humans go back to the moon and possibly beyond as part of NASA's Constellation Program.

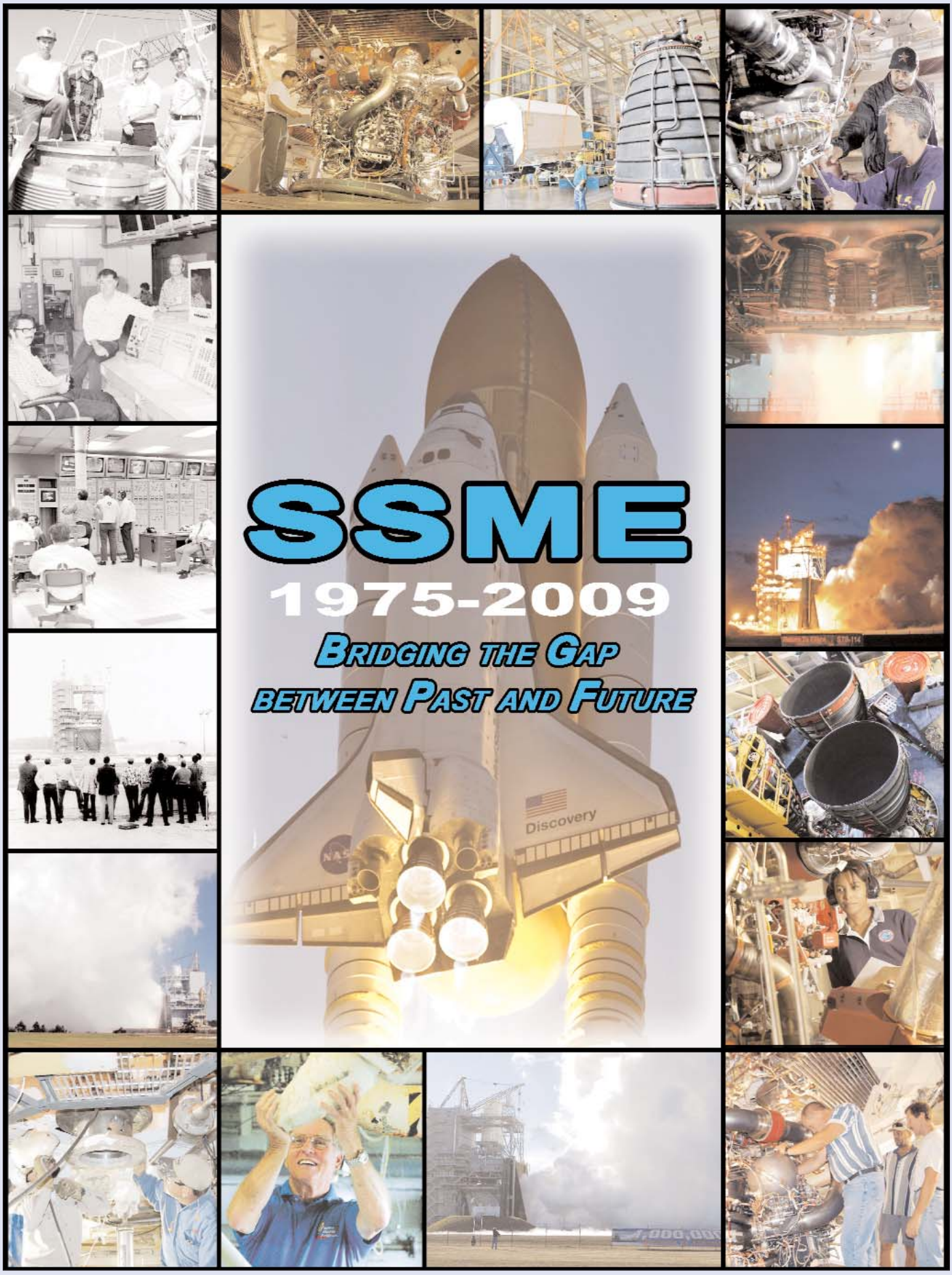
STS-127 mission a success

Under a cloud-washed sky, spectators watched as space shuttle Endeavour rose from Launch Pad 39A at NASA's Kennedy Space Center in Florida on July 15 (left photo) to begin the STS-127 mission to the International Space Station. It marked the sixth attempt to launch the mission. Launches were scrubbed on June 13 and June 17 due to a hydrogen gas leak. The mission was postponed July 11, July 12 and July 13 due to weather conditions. During the 16-day mission, the Endeavour crew delivered the Japanese Experiment Module's Exposed Facility and the Experiment Logistics Module-Exposed Section. The arrival of the shuttle crew at the space station was historic, setting a record for the most humans in space in a single vehicle at one time at 13. The mission featured five spacewalks before the shuttle crew headed for home. Touchdown (bottom photo) on Earth occurred July 31 at 9:48 a.m. at Kennedy Space Center in Florida. As on all previous shuttle flights, the STS-127 mission was powered into orbit by a trio of main engines tested at Stennis Space Center.

Stennis marks Apollo anniversary

Stennis Space Center employees and their family members marked the 40th anniversary of the Apollo 11 moon mission with an afternoon of activities July 28. Midway through the afternoon, summer thunderstorms forced activities inside the StenniSphere visitors center and museum. However, families still had an opportunity to enjoy a variety of activities and demonstrations. (Top left photo) Stennis Director Gene Goldman joined participants in the celebration, speaking to employees and visitors in the StenniSphere auditorium. (Top right photo) Participants had a chance to view a timeline of space exploration in the museum, as well as visit the shuttle landing simulator and other exhibits. (Bottom left photo) During outside activities, children enjoyed a space shuttle docking game. (Bottom right photo) Inside StenniSphere auditorium, celebration participants of all ages were able to view a cryogenic demonstration. Hundreds of employees and family members attended the anniversary gathering.




SSME
1975-2009
BRIDGING THE GAP
BETWEEN PAST AND FUTURE
Discovery

An era of excellence draws to a close with historic test

With 520 seconds of shake, rattle and roar July 29, NASA's John C. Stennis Space Center marked the end of an era for testing the space shuttle main engines that have powered the nation's Space Shuttle Program for nearly three decades.

This was the final test of a main engine for the space shuttle, which is set to retire in 2010. More than 34 years ago, on June 27, 1975, Stennis personnel conducted the first test on one of the world's most sophisticated rocket engines.

"One cannot overstate the role Stennis has played in our nation's space program for the last 34 years," Stennis Director Gene Goldman said. "Its workers have created an unparalleled legacy of engine testing excellence."

That legacy was one part of an overall agencywide accomplishment of note. After NASA achieved the ambitious goal of landing humans on the moon by the end of the 1960s, the agency turned its sights to a new challenge. Even before the Apollo Program ended in 1972, NASA announced plans for construction of an unprecedented, reusable space vehicle.

The resulting space shuttle proved its worth, serving as the workhorse of the American space program for more than three decades, helping to foster cooperative efforts with nations around the world, enabling construction of the International Space Station, providing a remarkable, space-based science laboratory and contributing to countless spinoff technologies that continue to enhance daily life.

All NASA centers contributed to the Space Shuttle Program. At Stennis, the charge was to test and prove flight-worthy the main engines that would propel astronauts into space aboard the new shuttle. Overall, in more than three decades of testing, about 50 main engines have been certified for use on almost 130 shuttle missions. These engines can be used to power more than a dozen flights before being retested, yet no shuttle mission has failed as a result of engine malfunction.

"The excellent flight record of the space shuttle main engine can be largely attributed to the test team at Stennis Space Center," said Ronnie Rigney, acting space shuttle main engine test project manager at Stennis. "We have performed over 2,000 tests, totaling more than 1 million seconds of accumulated hot-fire time in support of the development, certification, acceptance and anomaly resolution for the space shuttle main engine.

"Stennis Space Center is truly unique in that propulsion test operations expertise has been passed from generation to generation through the Apollo and Shuttle programs since the mid-1960s, making this workforce one of the most knowledgeable in its field," Rigney explained. "This last test of the space shuttle main engine represents great accomplishments for this team, as well as new opportunities and challenges to transition to a new era in the nation's space program.

At one point, all three test stands at Stennis were involved in shuttle engine testing. In recent years, testing for the program occurred only on the A-2 Test Stand as Stennis began preparing the A-1 stand for testing the J-2X engine currently in development. The new engine will help power the Ares I and Ares V rockets that will take humans back to the moon and possibly beyond as part of NASA's newest space challenge – the Constellation Program.

NASA assigned Stennis to test space shuttle main engines in 1971. Prior to the initial shuttle flight, the Stennis team conducted some 500 tests on the engine

and its components. They also test-fired the three-engine cluster arrangement – the main propulsion test article – that is used to power the space shuttle, an accomplishment some called the facility's "finest hour."

In single-engine and cluster testing alike, the goal was the same: eight and one-half minutes of successful firing, duplicating the amount of time it takes the engines to power the shuttle from launch into orbit.

The key test – for the engines and NASA's new, reusable space vehicle – came when space shuttle Columbia lifted off from Kennedy Space Center in Florida on the maiden STS-1 mission in April 1981. The vehicles and the engines performed perfectly as more than 37 million horsepower carried astronauts Robert Crippen and John Young into space.

"We (went) from sitting still on the launch pad at the Kennedy Space Center to traveling at 17,500 miles an hour in … eight and one-half minutes," Crippen said. "It is still mind-boggling to me."

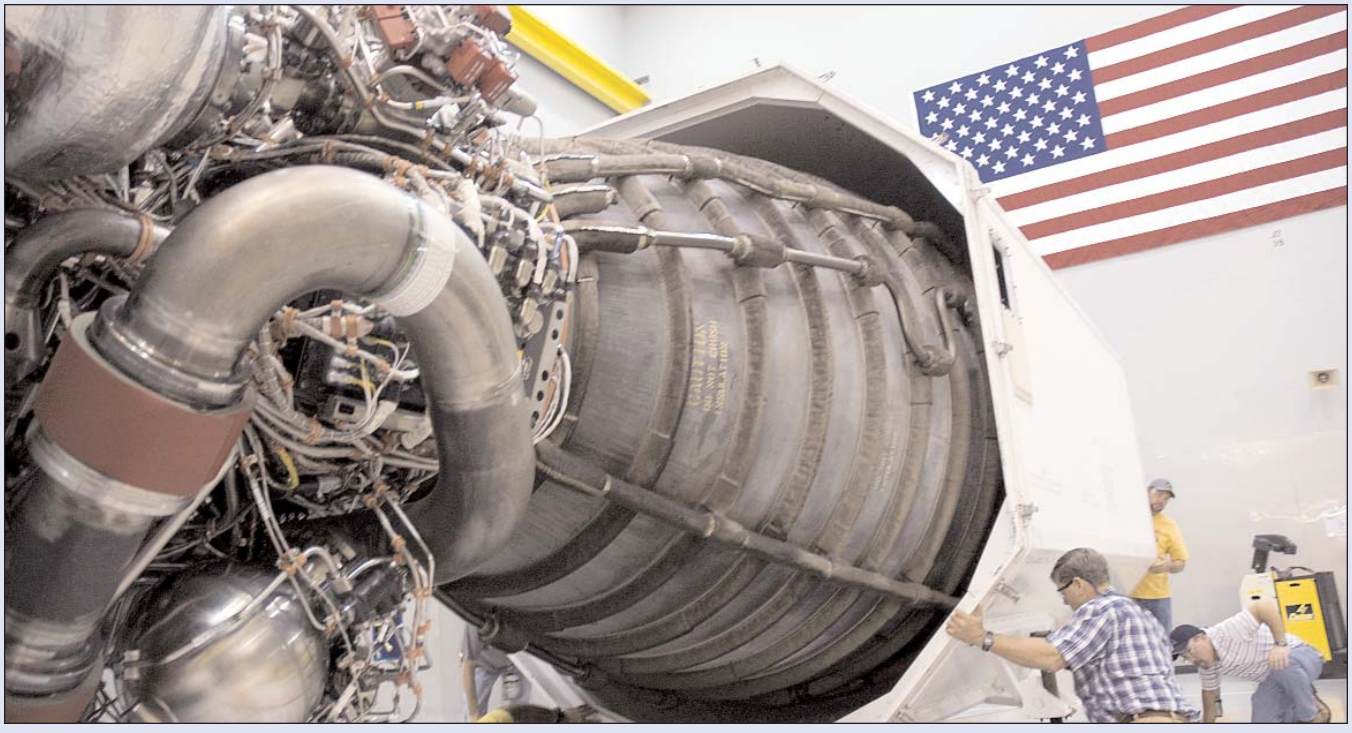
Following the successful STS-1 mission, Crippen and Young visited Stennis Space Center. "The effort that you contributed made it possible for us to sit back and ride," Crippen told Stennis employees there. "We couldn't even make it look hard!"

Testing continued for the almost 130 space shuttle flights to follow. Each time, adjustments and modifications were made to improve the safety and performance of the space shuttle main engine, Stennis engineers joined other NASA centers to provide necessary testing

Members of the shuttle crew for the STS-124 mission pose beside a space shuttle main engine during their July 23, 2008, visit to Stennis.

to prove the changes were flight worthy. And when tragedy struck the shuttle program in 1986 and 2003, Stennis engineers worked with peers across NASA to ensure a safe return to flight for astronauts.

In January 2004, Stennis celebrated a major milestone in its work – the 1 millionth second of successful test and flight operations of the space shuttle main engine. The July 29 test means all engines for the remaining shuttle flights have been proven flight worthy. It also means NASA has moved one step nearer to closing the longest chapter of American space exploration history – the Space Shuttle Program.



Stennis employees "unpack" space shuttle main engine No. 2061 on Oct. 1, 2008, in preparation for testing it for flight readiness.

A histo

(Center photo) Stennis employees and guests watch the July 29 ignition of the last planned space shu
(Left photos, from top) 1. Pat Mooney (left) and Boyce Mix reminisce during a recent luncheon onsite
engine testing project. 2. Pratt & Whitney Rocketdyne Vice President Jim Paulsen (l to r), NASA's Spa
John Shannon visit during the July 29 test firing. 3. Stennis Space Center Director Gene Goldman (ce
director from 1976 to 1989. Estess succeeded him, serving from 1989 to 2002. 4. Stennis employees
conducted for a full 520 seconds, the amount of time the main engines must fire to lift the shuttle from
(Right photos, from top) 1. Stennis engineer Maury Vander receives a certificate of appreciation from NA
Test Complex team members who performed a critical series of tests on a shuttle flow control valve earli
Awareness award on behalf of the space shuttle main engine test operations team from Stennis Director
was honored for excellence in testing and delivering main engines for flight on shuttle missions. 3. NASA
Shuttle Main Engine Acting Project Manager Ronnie Rigney and NASA's Space Shuttle Program Manag
Showers (right) of WLOX-TV in Biloxi and Kevin DeBusk with the Times of Stone County newspaper in

ric test

ttle main engine test on the A-2 Test Stand at the south Mississippi facility.
about their earlier days as Stennis engineers. Both were deeply involved in the space shuttle main
ace Shuttle Main Engine Project Manager Jerry Cook and NASA's Space Shuttle Program Manager
nter) stands with two of his predecessors – Roy Estess (left) and Jerry Hlass. Hlass served as center
and guests watch the last planned space shuttle main engine test at Stennis on July 29. The test was
launch into orbit.
SA's Space Shuttle Program Manager John Shannon during a July 29 ceremony. Shannon visited E
er this year. 2. Pratt & Whitney Rocketdyne employee Jim Shows (center) receives a Space Flight
Gene Goldman (left) and NASA's Space Shuttle Program Manager John Shannon. The Stennis team
's Space Shuttle Management Integration & Planning Office Manager Rebekah Reed, Stennis Space
er John Shannon visit during July 29 activities. 4. Stennis Director Gene Goldman is interviewed by Al
Wiggins, Miss.

Space shuttle engine testing work involved the 'best and brightest'

Many have said it: the space shuttle main engine is one of the most efficient, sophisticated rocket engines ever built, the Lamborghini of its class.

It stands to reason, then, the engineers, technicians and inspectors who maintain, troubleshoot and test the space shuttle main engine would rate just as elite.

Do not expect to get an argument from Ronnie Rigney on either count – and he should know. Rigney has been involved with the space shuttle main engine testing project at NASA's John C. Stennis Space Center for more than two decades, and now serves as acting project manager.

"This is an extremely dedicated and knowledgeable work force," Rigney said of the Stennis space shuttle main engine testing project team. "They are not just average people, but experts in their fields, some of the best and the brightest."

Test operations team members for the last planned space shuttle main engine test July 29 commemorated the occasion by wearing period clothes from the 1960s.

That fact has been proven time and again during the 34 years of space shuttle main engine testing at Stennis, Rigney said. At times, he has seen three shifts working around the clock, seven days a week, 52 weeks a year. He has watched the team tackle puzzling anomalies and engine hardware issues, while supporting an often-pressing space shuttle flight schedule.

Stennis has played a critical role in the flight schedule. It represents the last stop for an engine or component before it propels NASA's reusable space vehicle to flight. If time is lost elsewhere, it falls to Stennis personnel to make up the difference, to do their work in time for the shuttle to fly safely as planned.

"People do not realize how much goes into the testing and preparation of these engines for flight," Rigney said. "It really is incredible what is accomplished here. For the past 34 years, this team has constantly faced new and unknown conditions with confidence and determination, ensuring that the space shuttle main engines perform safely for the astronauts who fly them."

The test team at Stennis actually performs four categories of testing on the space shuttle main engine: anomaly testing to determine the cause and resolution of issues that arise during operation, validation and verification testing for new modifications to the engine, system level certification testing of new design configurations, and acceptance testing of components and complete engines. In each instance, it is Stennis test team members who make it possible for an engine or component to fly.

The Stennis rocket engine test stands are designed to simulate shuttle and launch pad systems as closely as possible. In essence, in a test, Stennis fires the main engine just as it is configured on the shuttle, while pushing it to extreme limits to ensure safe operation during flight.

It is a careful and exact procedure. "There are a thousand scenarios of things you have to keep in sequence and in timing," Rigney said. "It takes careful and exact planning to manage the ever-changing environment that the test team deals with. For each change in process or design, there are thousands of potential scenarios or potential outcomes that must be considered."

This especially was true from 1978 to 1981 when Stennis engineers fired the Main Propulsion Test Article (MPTA) – three engines linked exactly as they are for a shuttle launch. The success of that testing prior to the first shuttle launch in 1981 has been characterized as one of Stennis' finest hours – and rightfully so, Rigney said.

For MPTA testing, engineers simulated the orbiter structure and main propulsion systems, even to the point of having an external tank mounted on the stand. This allowed the Space Shuttle Program to examine sequencing, timing and control of the propulsion systems without putting the shuttle or astronauts at risk.

There were many issues along the way with both the sin-

gle-engine and MPTA testing. Engines were destroyed at times. "But we were working our way through it, learning what to do and what not to do, learning what affects what and why," Rigney explained.

It can be difficult to fathom the precision needed in firing the shuttle main engine. Se-quences are programmed to occur on a time-scale of milliseconds. A simple design change can force adjustments in dozens of other places, challenging the best minds in the field.

"Everyone out here is very aware of their responsibility," Rigney said. "They know what is on the line. They work with a lot of pride and sense of accomplishment."

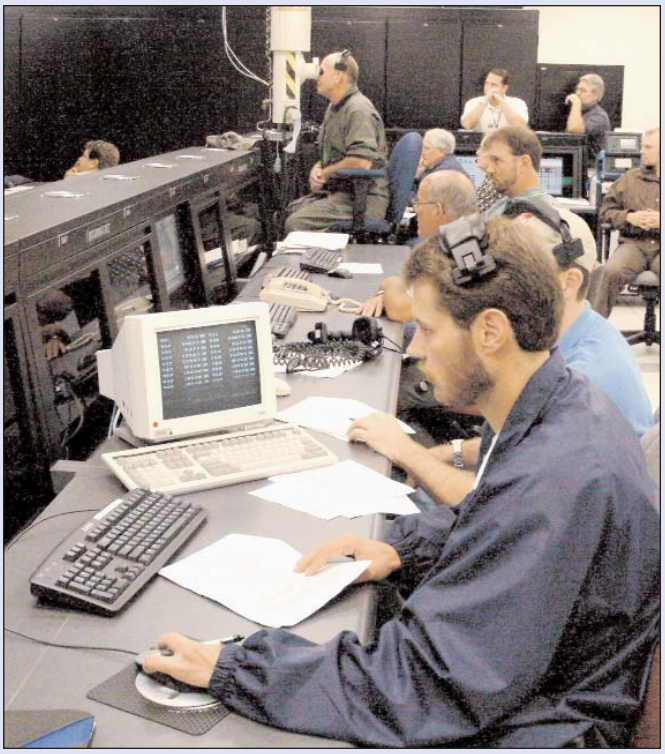
The focus and commitment were evident up to the last planned space shuttle main engine test July 29. "We wanted to finish well," Rigney emphasized. "The whole focus was on doing one's best, making sure the job was done right, always thinking of the safety of our astronauts and the nation's flagship for space transportation."

With that test completed, work now focuses on several other areas, Rigney said. The test stand is being deactivated to a safe "standby" condition. All propellants will be removed from the systems while only minimal purge capability will remain.

Stennis personnel also continue to support the shuttle flight program, which has seven more scheduled missions into 2010. Some possess skills needed to address anomalies experienced during flight. Others will be available for needed repairs and inspection of space shuttle main engine reusable components. Spare component parts also continue to be stored and maintained in proper condition on site. In addition, Stennis continues to handle all of the ground support equipment needed to assemble, maintain, transport and store the main engines.

A "knowledge capture" effort is under way as well, Rigney said. "We've been working on these engines for 34 years.

A rainbow appears in the steam following a Sept. 1, 2003 space shuttle main engine test on the A-2 Test Stand.



Test operations team members monitor the 1,000th space shuttle main engine test conducted on the A-1 Test Stand on Aug. 17, 2006.

Now, we'll be working to document the knowledge gained, why and how we did things. This effort will protect our ability to return to testing in the event it is required by the shuttle program, as well as provide a wealth of knowledge for use in future test projects."

The schedule calls for Stennis' A-2 Test Stand to be readied and turned over to the Rocket Propulsion Test Program at Stennis on Oct. 1. After that, no test stand at Stennis will be dedicated to space shuttle main engine testing.

Rigney recalls when all three tests stands were involved in the work, even when space shuttle main engine tests were performed on the A-1, A-2 and B-1 test stands on the same day. He remembers long days of troubleshooting, months when testing was performed every other day on a stand, and conference calls at all hours of the day and night as engineers around the country worked to solve a pressing problem.

So, it is no surprise he approached the last planned test with bittersweet feelings. "You don't work on something that long and not feel sad at the prospect of it ending," he acknowledged. "But more importantly, we're very proud of what we've accomplished as a team for the past 34 years and look forward to the opportunities we will have to further NASA's mission in the future."

"Now, what is left is to tell the story, to let everybody know what these folks in south Mississippi have accomplished," he continued. "And we need to tell it well, because the team deserves it, and the public deserves the opportunity to feel pride in what has been accomplished as a nation through this team's effort."

Space Shuttle Main Engine

Fun facts

- Combining shuttle flights and all testing done at NASA centers, space shuttle main engines have been fired 3,146 times for a total of 1,082,923.14 seconds. By far, the bulk of that testing has occurred at Stennis Space Center, where 2,307 tests have been conducted for a total of 820,475.68 seconds.

- A space shuttle main engine operates at greater temperature extremes than any mechanical system in common use. Its fuel is liquid hydrogen, the second-coldest liquid on Earth at minus 423 degrees Fahrenheit. When the fuel is burned with liquid oxygen, the combustion chamber temperature reaches 6,000 degrees Fahrenheit, higher than the boiling point of iron.

- A trio of main engines helps to power the space shuttle from launch to about 18,000 miles an hour in just eight and one-half minutes.

- The first space shuttle main engine test was conducted at Stennis Space Center on May 19, 1975. The first space shuttle mission was launched April 12, 1981.

- A computer controller on each space shuttle main engine checks the engine 50 times a second, making adjustments to maintain peak performance.

- Although not much larger than an automobile engine, the fuel turbopump on a space shuttle main engine generates 100 horsepower for each pound of its weight, compared to the 0.5 horsepower generated by the automobile engine for each pound of its weight. Viewed another way, the turbopump generates as much horsepower as 28 locomotives.

- The 1 millionth second of space shuttle main engine firing was recorded at Stennis Space Center on Jan. 24, 2004, during a test conducted on the A-2 Test Stand.

- A space shuttle main engine weighs 7,774 pounds and can generate 1.1 million pounds of thrust, comparable to 52,500 race car engines and enough to maintain the flight of two 747 airliners.

Stennis part of new development effort

Two John C. Stennis Space Center engineers were among the inaugural class of graduates from NASA's Systems Engineering Leadership Development Program (SELDP).

Dawn Davis and Bryon Maynard were among 15 program participants recognized during a leadership workshop and graduation ceremony at NASA Headquarters in Washington, D.C., in late June.

Both are completing development assignments related to NASA's Constellation Program to go back to the moon and possibly beyond.

Davis is completing a one-year assignment at Marshall Space Flight Center in Huntsville, Ala., supporting the Ares I avionics and software chief engineer and the upper stage engine avionics lead systems engineer. Ares I will serve as the crew launch vehicle for the Constellation Program.

Maynard is on assignment at Johnson Space Center in Houston as an assistant chief engineer for the Orion crew exploration vehicle that will carry astronauts back to the moon.

Both began their assignment Oct. 1, 2008, as part of a NASA effort to provide leadership development and technical training opportunities to systems engineers in the agency. As designed, participants in SELDP are given the chance to work at a NASA center other than their own.

In addition to Davis and Maynard traveling to other centers, Stennis has hosted Carlos Ortiz-Longo from Johnson Space Center as part of the program during the past year. He worked as a systems engineer in support of the AJ26 test effort at the E-1 Test Facility. "Carlos has been an outstanding member of the team, learning more about the test operations world of NASA's propulsion testing programs, bringing his thermal and material experience to bear and learning more about the other aspects of systems engineering from the Stennis perspective," said Christine Powell, systems and test integration lead in Stennis' Engineering and Test Directorate.

Participants in the June graduation ceremony for the inaugural class of the System Engineering Leadership Development Program included (l to r) NASA Associate Administrator Chris Scolese; Stennis Associate Director Rick Gilbrech; Stennis engineer David Coote; Stennis engineers and SELDP participants Dawn Davis and Bryon Maynard; Stennis engineer and SELDP advocate Bartt Hebert; Stennis engineer Christine Powell; and NASA Chief Engineer Michael Ryschkewitsch.

SELDP was established after NASA leaders identified systems engineering as a critical core competency for current and future space mission success. The program uses various learning experiences to broaden participants' technical understanding of NASA.

"The opportunity to work on the design of flight hardware for the next launch vehicle that will take man to the moon has been an incredible experience for me," Davis reported. "It has given me an appreciation of the necessity of practicing both the art and science of systems engineering to ensure the success of a project."

Maynard characterized his decision to participate in SELDP as one of the best career choices he has made. "This project has provided me new experiences and lessons that would have not been attainable at Stennis," he said. "The most pleasant aspect of the program is the continuous engagement of the great people working for NASA. I am looking forward to returning to Stennis with a whole new set of tools and experiences."

Stennis Associate Director Rick Gilbrech was at NASA Headquarters for the June graduation workshop and ceremony. He praised the program for its focus.

"Most engineers start their careers with a deep knowledge in a narrow discipline," Gilbrech said. "The key to developing good systems engineers is exposing them to subsystem or system design projects to develop a broader technical root system. The SELDP program does just that by giving participants geographically and technically diverse assignments. Another side benefit for most will be the professional relationships they develop with their classmates that they can draw on for their entire careers. It's a great program."

Bartt Hebert, chief engineer in the Engineering and Test Directorate at Stennis, serves as SELDP advocate for the center. "SELDP is truly a win-win for participants and the agency," he said. "Dawn, Bryon and Carlos have been able to expand their skills and knowledge, which will benefit Stennis and the agency as we continue into future programs. We look forward to continued participation."

NASA fund selects 2 Stennis projects

NASA's Innovative Partnerships Program, working with the Office of the Chief Engineer at headquarters, has selected 20 projects from more than 230 proposals for the 2009 NASA Innovation Fund, including two based at John C. Stennis Space Center.

The Stennis projects are:

• **Harvesting Vibrational Energy to Power Wireless Instrumentation Systems.** The project is headed by Scott Jensen, a technologist electronics engineer in the Electrical Design Division of the Engineering and Test Directorate at Stennis. It seeks to help engineers more efficiently harness the vibrational energy produced by rocket propulsion systems and use it to power wireless instrumentation.

• **Coanda Rocket Plume Deflectors for Large-Scale Test Facilities**. The project is headed by Dr. Daniel Allgood, an aerospace technologist in the EA33 Design and Analysis Group of the Engineering and Test Directorate at Stennis. It seeks to modify the current water-cooled system that deflects rocket engine test plume from a vertical downward direction to a horizontal direction safely away from a test facility. The goal is to create what is known as a "coanda-effect" deflection system that would be more cost-efficient.

"For being one of NASA's smaller and more operationally oriented centers, the selection of these two projects under this new Innovation Fund program shows that Stennis also has depth in its talent base to conduct novel research and development in support of the nation's space program," said Ramona Travis, chief of the Innovative Partnerships Program at the south Mississippi facility.

The Innovation Fund was established to advance work on novel technologies and concepts that have the potential to revolutionize the way NASA performs its missions, such as enabling new capabilities in space flight, science, aeronautics or exploration. Projects that offer potential solutions to other national and global challenges also are of particular interest.

This year marks the first in what is meant to be a longer term program to encourage early stage advancement of novel ideas, Travis said. In subsequent years, funding not only will be provided for such initial projects but for moving successful early initiatives to the next level of development and testing, she explained.

In addition to the Stennis initiatives, the 20 selected projects for 2009 include a technique for returning small payloads from the space station, a new approach to robotic space exploration, several new concepts for generating solar power, improved instruments for studying the environment, and a means of using microwave energy for sealing wounds.

Each Innovation Fund project selected is funded for a maximum of $50,000, with work to be completed by the end of September.

@ Stennis

How do you feel seeing an end to the testing of space shuttle main engines at Stennis?

Editor's Note: *@ Stennis highlights the views and opinions of Stennis Space Center employees.*

"Obviously, it's sad, but hopefully, the J-2X engine testing will pick up quickly. I hope so, because I'm ready for us to go back to the moon."

Alan Howe, Pratt & Whitney Rocketdyne

"It's a bittersweet feeling to see a program of so many years come to an end. But I'm excited about our future with the J-2X engine testing on the horizon."

Vince Pachel, NASA

"It's kind of sentimental, but I'm looking forward to what's coming next. Everything changes, and this is the time for change."

Manning Jones, Jacobs FOSC

"It's somewhat sad, but when you look at what's coming next, it's pretty exciting. Still, anytime you see the end to such a stellar program, it's sad."

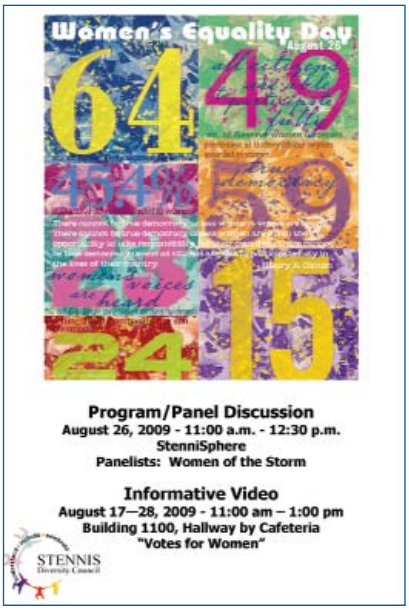
Jim Williams, Jacobs NTOG

Office of Diversity and Equal Opportunity

Observe Women's Equality Day

August 26 of each year is designated in the United States as Women's Equality Day. Instituted by Rep. Bella Abzug and first established in 1971, the date commemorates the 1920 passage of the 19th amendment, the women's suffrage amendment to the U.S. Constitution, which gave U.S. women full voting rights.

In honor of Women's Equality Day, Women of the Storm has been invited by the Stennis Diversity Council to present a panel discussion on Aug. 26, 2009, at 11 a.m. in the StenniSphere auditorium.



Women of the Storm is a non-partisan, non-political alliance of Louisiana women whose families, businesses and lives were impacted by the devastating effects of Hurricanes Katrina and Rita. Members are culturally, socially and economically diverse.

The thing that ties them together is their passion for their communities and for raising awareness of elected officials about the extreme needs of areas impacted by the powerful storms that struck the Gulf Coast region in 2005.

The premise behind Women of the Storm is a simple one: You just can't understand the conditions of New Orleans and the Gulf Coast until you see it for yourself.

January 2006, in the group's most-visible event, 130 women boarded a plane in New Orleans and traveled to Washington, D.C., where they "stormed" Capitol Hill. Members of the group set out two-by-two to visit the offices of members of Congress and offer personal invitations for the senators and representatives to visit and tour the affected areas. To date, 57 senators and 142 representatives have accepted the group's offer.

NASA scholarship awarded

Stennis Space Center Director Gene Goldman (left) recently presented Anne E. Holladay, daughter of John C. Stennis Space Center employee Wendy Holladay, with one of only five 2009 NASA College Scholarship Fund awards. A 2009 graduate of Northshore High School in Slidell, La., Holladay plans to begin studies in physics this fall at the Massachusetts Institute of Technology in Cambridge, Mass. She is a student-employee at the Naval Research Laboratory at Stennis. Incorporated in 1982, the NASA College Scholarship Fund annually awards up to five $2,000 scholarships nationwide to dependents of NASA employees to enhance engineering and science education.

Hail & Farewell

NASA bids farewell to the following:

Jon Roth	Program Specialist Office of the Chief Financial Officer

And welcomes the following:

Rebecca Junell	AST, Structural Dynamics Engineering and Test Directorate

NASA Stennis Space Center
Shooting For A Star

VPP
Voluntary Protection Programs
An OSHA Cooperative Program

Applied Geo Technologies Inc. received notice they are the first organization at Stennis to be officially designated by the Occupational Safety and Health Administration as a Star Demonstration worksite. Congratulations to all AGT employees.

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Educator Resource Center relocates

The Educator Resource Center at Stennis Space Center has relocated to Building 3101 at the South Gate entrance on Mississippi Route 607.

Previously, the resource center had been located within Stennis, which meant educators had to gain security clearance to visit or to attend workshops at the Little Red School House.

With the move, most Educator Resource Center workshops will be held at the new location. Educators will be able to attend the sessions or pick up center materials without gaining security clearance.

To reach the center, educators arriving from Interstate 10 should take Exit 2 and travel north on Mississippi Route 607. The resource center is located to the right of the South Gate entrance. Visitors will not need a security badge.

Education personnel at Stennis hope that the relocation will increase accessiblity and use of resource center and its materials. The center seeks to provide K-12 teachers and students with a range of educational workshops, materials and NASA activities.

Kids enjoy Stennis visit

Almost 200 children participated in the annual Take Our Children to Work Day at Stennis Space Center on July 21. The children received a windshield tour of the site and demonstrations on cryogenics, the pocket rocket, visualization and FIRST Robotics. Participating children also had a chance to view a "How to be an Astronaut" video. During a visit to the StenniSphere visitors center and museum, children were able to view Science on a Sphere, the newest exhibit on site. Deputy Director Patrick Scheuermann gave opening remarks to employees and their special guests.

Stennis brings education tools to university

Stennis Space Center personnel visited Mississippi Valley State University in Itta Bena, Miss., on July 14-16 to offer mini-sessions of Astro Camp to local students and hold a three-day professional development workshop for K-8 grade educators. Stennis personnel also provided several informational exhibits during the visit, as shown at right.