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John C. Stennis Space Center

SSC's rocket engine test stands provide test operations for the development and certification of propulsion systems, engines, subsytems and components.

Rocket Engine Testing

For more than four decades, NASA John C. Stennis Space Center, located in south Mississippi, has served as NASA's rocket propulsion testing ground. Today, the center provides propulsion test services for NASA and for the Department of Defense, as well as the private sector.

The unique waterway system and 125,000-acre acoustical buffer zone that surrounds SSC are considered national assets, and enable testing of large-scale rocket engines and components.

SSC was initially established as a national testing center to flight-certify all first and second stages of the Saturn V rocket for the Apollo manned lunar landing program. Since 1975, the center's primary mission has been to test the main engines that propel the space shuttle during its 8 ½-minute ascent to orbit.

In 2010, the Space Shuttle Program will end and a new fleet of launch vehicles will power America's next-generation spacecraft, Orion, which will carry astronauts back to the moon with eventual journeys to Mars. SSC is testing core components for the J-2X rocket engine that will power the upper stage of the new crew launch vehicle, Ares I, and the Earth departure stage of Ares V, the new cargo launch vehicle. The J-2X engine is derived from Apollo's Saturn V rockets that were tested at Stennis 40 years ago.NASA has chosen the RS-68engine to power the core stage of the Ares V, intended to carry large payloads to the moon. The prime contractor for the RS-68 engine is Pratt & Whitney Rocketdyne of Canoga Park, Calif. All RS-68 engines are assembled and test-fired at SSC.

SSC hosts the rocket propulsion test program, managing the propulsion test facilities at Marshall Space Flight Center in Alabama, the White Sands Center's Plum Brook Station in Ohio, as well as the test facilities at Stennis.

SSC's state-of-the-art test facilities include the A, B and E complexes, designed for rocket propulsion testing from component to engine to stage-level. The A-3 Test Stand currently under construction at Stennis will be used to prove the J-2X engines. SSC's versatile, three-stand E Test Complex with its seven separate test cells serves as a component test facility for future-generation rocket engines.

Applied Research & Technology

SSC's Applied Research and Technology Project Office uses NASA's science research results, remote sensing and other technical capabilities to bridge the gap between research results and the use of data to help its partner agencies (such as the Federal Emergency Management Agency and the U.S. Department of Agriculture) make better informed decisions. Scientists at SSC use remote sensing technologies and their expertise in rapid prototyping to expand and improve prediction capabilities. Through better prediction, they can speed response times to natural hazards and manmade disasters. The Applied Research and Technology Project Office focuses on Coastal Management, one of the Applications of National Priority established by NASA's Science Mission Directorate.

Scientists at SSC use imagery such as this of Hurricane Katrina captured Aug. 29, 2005, to improve prediction capabilities.

Innovative Partnership Program

The Office of Innovative Partnership Program transfers NASA-developed technologies to the commercial sector to help improve the economic strength of the United States and quality of life for its citizens. IPP at NASA John C. Stennis Space Center is made up of the Small Business Innovative Research and Small Business Technology Transfer programs, Intellectual Property Management and the Dual-Use Technology Development Program. IPP is responsible for the research and the development of new technologies, as well as the assessment, certification and acquisition of new technologies from the commercial, academic and government sectors to improve the safety, efficiency and effectiveness of propulsion testing, Earth science applications and Stennis Space Center's institution.

NASA Shared Services Center

NASA Shared Services Center officially opened for business March 1, 2006. Projected to employ 500 when fully staffed, NSSC will provide NASA's centralized administrative processing services and customer contact center operations for support of human resources, procurement, financial management and information technology. The organization provides increased efficiency, state-of-the-art administrative services processing and includes a significant information technology staff.

A Unique Federal City

NASA John C. Stennis Space Center is home to more than 30 federal, state, academic and private organizations and numerous technology-based companies that share the cost of owning and operating the facility, making it more cost-effective for each agency to accomplish its independent mission.
The Naval Meteorology and Oceanography Command, the largest concentration of oceanographers in the world, is headquartered at SSC, along with the Navy's corporate laboratory, the Naval Research Laboratory. Also located at SSC is the training ground for the Department of Defense's agent to conduct riverine warfare around the world, Special Boat Team TWENTY-TWO, and the headquarters of the Naval Small Craft Instruction and Technical Training School.
Also located at SSC is the Lockheed Martin Mississippi Space and Technology Center, and Rolls-Royce North America is currently building an Outdoor Jet Engine Testing Facility. The Mississippi Army Ammunition Plant Industrial Complex is home to commercial and government endeavors, such as Pratt & Whitney Rocketdyne's new RS-68 rocket engine assembly facility.
With this effective cost-sharing philosophy and its reputation for state-of-the-art test facilities, highly trained, professional workforce and commitment to safety and customer satisfaction, SSC serves as a model of government efficiency, showing American taxpayers positive returns on their investments.

Providing Economic and Community Impact

NASA has a workforce of about 2,200 civil servants and contractors, part of the center's total workforce of nearly 5,000. With more than 1,700 scientists and engineers on-site, the center has a strong influence on the economy of surrounding communities.
SSC's community involvement includes participation in the Combined Federal Campaign fund-raising drive, hosting the annual Special Olympics, serving as a Civil Defense shelter and conducting educator workshops.
StenniSphere, the visitor center at SSC, offers free tours of America's largest rocket engine test complex. Displays at StenniSphere include a moon rock, along with a space shuttle main engine, an Apollo Saturn V engine and other artifacts from the space program and other institutions.

For more information about Stennis Space Center, contact the NASA Public Affairs Office at 228-688-3341 or visit www.nasa.gov/centers/stennis.

National Aeronautics and Space Administration

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