ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION OF THE LOCKHEED MARTIN PROPULSION, THERMAL, AND METROLOGY CENTER

JOHN C. STENNIS SPACE CENTER
HANCOCK COUNTY, MISSISSIPPI

Lead Agency: National Aeronautics and Space Administration, John C. Stennis Space Center

Proposed Action: To construct a 20,440 square meter (220,000 square foot) center for production of propulsion systems, thermal control systems, and metrology standards for calibration of test equipment and tools

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Abstract: NASA, in partnership with Lockheed Martin's Space Systems and Technology Services companies, the Mississippi Development Authority, and Hancock County is participating in the establishment of a Propulsion, Thermal, and Metrology Center (hereinafter referred to as the "Center") at John C. Stennis Space Center (SSC). The Center would consist of 20,440 square meters (220,000 square feet) of office space, operations facilities and warehouse. Alternative locations at SSC are considered, as well as the "No Action Alternative". This environmental assessment is for construction and general operation of facilities.

Executive Summary

NASA is preparing this environmental assessment to identify possible environmental impacts associated with the construction and operation of a Propulsion, Thermal, and Metrology Center at SSC. The Center would consist of 20,440 square meters (220,000 square feet) of office space, operations facilities and warehouse. The environmental aspects considered for the proposed construction include fugitive air emissions, storm water control, wetlands disturbance, intermittent noise, traffic, SSC facility infrastructure upgrades, and waste generated from construction. The Center would be connected to the existing SSC sewage system and potable water system. Alternatives considered are locating the Center on the north side of Standby Road at Main Line Road, near the H1 Test Stand, and across the SSC canal from Building 3202 as well as the "No Action Alternative". This environmental assessment is for construction and general operation of facilities.

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1.0 Purpose and Need

NASA, in partnership with Lockheed Martin's Space Systems and Technology Services companies, the Mississippi Development Authority, and Hancock County, is participating in the establishment of a Propulsion, Thermal, and Metrology Center at John C. Stennis Space Center (SSC). Lockheed Martin Space Systems will operate the Propulsion and Thermal Center and Lockheed Martin Technology Services will be responsible for Metrology. The Center would be used for the production of propulsion systems such as thrusters for satellites and other spacecraft, thermal control systems to protect space vehicles from extreme temperatures, and for development of standards to calibrate test equipment. The building would consist of a total of 20,440 square meters (220,000 square feet); 1240 square meters (13,400 square feet) of office and administrative space, 18,500 square meters (199,100 square feet) of operation and assembly space, and 700 square meters (7,500 square feet) of warehouse space. The decision to construct this Center at SSC was based in part on the desire to be in close proximity to NASA's Lead Center for Propulsion Testing.

An environmental assessment of the proposed project has been conducted to comply with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA (40CFR Parts 1500-1508), and NASA's policies and procedures (14CFR 1216.7).

2.0 Description of Proposed Action and Alternatives

The proposed action is to construct a 20,400 square meter (220,000 square foot) Center on a 24.3 hectare (60 acre) parcel of NASA-owned land leased to the State of Mississippi and to upgrade two roads for Center access. The preferred alternative would be to locate the Center in the north eastern section of the SSC facility at the corner of Main Line Road and Standby Road such that there will be access to Texas Flat Road and the Stennis International Airport. Other alternative locations considered for construction of the Center are the H1 Test Stand area and across the canal from Building 3202. The "No Action Alternative" is also included in this assessment. This environmental assessment is for construction of facilities only.

Inclusion of the "No Action Alternative" is prescribed by the Council on Environmental Quality guidelines implementing the National Environmental Policy Act (NEPA). The "No Action Alternative" provides the benchmark against which the proposed actions are evaluated.

3.0 Existing Environment and Environmental Consequences of Alternatives

There would be little impact on the existing environment at SSC. The following sections describe any possible impacts that may occur during construction or as a result of the construction. The most notable impacts would be short-term fugitive air emissions, short-term intermittent noise from construction, wetlands disturbance, erosion control, and waste generated from construction.

3.1 Air Quality

Short-term fugitive air emissions may result from construction activities. Air quality impacts would be the same for all alternative locations. No action would result in no air emissions.

3.2 Noise

Noise from construction activities would have a short-term intermittent impact. Noise impacts would be the same for all alternative locations. The "No Action Alternative" would result in no additional noise.

3.3 Water Quality

The preferred alternative location for the Center would be connected to the existing sanitary sewer system which leads to Outfall 001 under National Pollutant Discharge Elimination System (NPDES) Permit #MS0021610. An additional 270 permanent employees will have some minor impact on the sewage system. SSC has design plans nearly completed for the expansion of Lagoon 1, which serves as the biological treatment system for Outfall 001. If necessary the design will be implemented to ensure compliance with effluent limitations.

Construction activities would cause a discharge of stormwater runoff from the area.. A stormwater general permit for construction will need to be obtained from the Mississippi Department of Environmental Quality (MDEQ) prior to the beginning of construction. This permit will require the construction contractor to abide by a pollution prevention plan that insures the reduction of possible impacts on the environment from erosion.

All alternatives would have similar considerations for domestic wastewater and stormwater except that the additional sanitary wastewater would be directed to Lagoon 2 instead of Lagoon 1 if the site near Building 3202 would be selected. The "No Action Alternative" results in no additional domestic waste water or stormwater runoff.

3.4 Groundwater Resources

Water for potable and industrial use at SSC is supplied through six large capacity wells on site. No industrial water would be needed for the Center. No impact to groundwater resources is expected.

3.5 Wetlands and Flood Plains

The SSC lies within the watersheds of two rivers: the East Pearl River on the western Fee Area boundary and the Jourdan River on the eastern Fee Area boundary. Some tributaries at the facility flow west to Harper Bayou and eventually drain into the East Pearl River. Other tributaries flow east

into Catahoula Creek, with some intermittent streams flowing south into Devil's Swamp. Catahoula Creek and Devil's Swamp both eventually drain into the Jourdan River. The Pearl River empties into Lake Borgne, while the Jourdan River drains into the Bay of St. Louis. Both Lake Borgne and the Bay of St. Louis discharge into the Mississippi Sound.

As a result of the wetlands hydrology found at and around SSC and the presence of hydric soils and hydrophytic vegetation, a large portion of both the Fee Area and Buffer Zone are considered jurisdictional wetlands by the U.S. Army Corps of Engineers (COE). All three alternatives considered would cause similar wetlands disturbance. It is anticipated that 13.8 hectares (34 acres) of wetlands may be impacted by this project. All alternatives are classified as Pine Savannah type wetlands that have been subject to forest management practices.

The disturbance of wetlands at SSC is covered under an existing General Permit #CELMK-OD-FE 14-GPD (Vicksburg District)-53 issued by the U.S. Army Corps of Engineers. As required by the permit, a Final Mitigation Plan was developed by NASA and the COE. NASA mitigates the unavoidable impacts to wetland functions and values associated with construction projects through creation, restoration, or enhancement and continued management of wetlands on property owned by NASA in the SSC Buffer Zone area.

If a determination has been made that a project will impact a wetlands area, the area would be inspected and the compensatory mitigation credit factors would be calculated and charged against the "Mitigation Bank" of credits held by SSC. Calculations are based on the "Charleston Method" developed by the U.S. Army Corps of Engineers (COE) of the Charleston District. This method incorporates information about the project such as construction plans, parking areas, and fill material. A request for authorization under the general permit would be submitted to the U.S. Army COE Vicksburg District Engineer at least 30 days prior to the initiation of construction.

Utility lines would need to be run along existing corridors and probably along newly developed corridors. If it is necessary to disturb wetlands along new corridors then SSC will request exclusion from the U.S. Army COE under provisions of the Nationwide Permit found in 33 CFR Appendix A to Part 330 B.12 for extension of utility lines.

The floodplain at SSC, according to the Flood Insurance rate Map for Hancock County, Mississippi, includes a 100-year floodplain along the East Pearl River at the western edge of the Fee Area, and a 100-year floodplain along the Wolf Branch and along the Lion Branch of Catahoula Creek in the northeast portion of the Fee Area. The line for the 500-year floodplain extends a little further into the site along the same boundaries. The majority of SSC is classified as Zone "C" meaning an area of minimal flooding. None of the alternatives would be located in the 100-year or 500-year floodplain.

3.6 Biotic Resources

Pine forest communities account for the majority of the vegetation in the uncleared portions of SSC

and the surrounding Buffer Zone. Bottomland hardwood communities occur in low, poorly drained soils, which may have standing water. Vegetation and wildlife species that occur at SSC are identified in the SSC Environmental Resources Document.

The proposed construction sites are located in wooded areas that may cause displacement of wildlife from the construction area to nearby woodlands. Impacts on biotic resources would be the same for all alternatives except the "No Action Alternative", which would result in no impact.

3.7 Threatened and Endangered Species

There are a significant number of threatened, endangered, and ranked species with ranges overlapping the SSC Fee Area and Buffer Zone. Federally-listed and State-ranked species that potentially occur in the project area are identified in the SSC Environmental Resources Document. The ranked and listed species that have ranges that include SSC are Gulf sturgeon, eastern indigo snake, Florida panther, gopher tortoise, bald eagle, and paddlefish. Proposed construction would not affect any threatened and endangered species or critical habitat that may exist in the SSC Fee Area. If a listed or ranked species is seen during construction, the appropriate agencies will be consulted

3.8 Archaeological Resources

Historically, the land at SSC has been severely disturbed by timber harvesting and the associated naval stores industry during the late nineteenth and early twentieth centuries. More recently, the land was disturbed by the construction of the SSC facility during the 1960's, making it unlikely that undisturbed archaeological sites would be found. In the Fee Area, only the townsite of Gainesville may require future archaeological considerations if land disturbing activities are proposed for the Fee Area. This project is not located near the Gainesville townsite and is on previously disturbed land. There are no anticipated archaeological impacts resulting from this project. If items of potential archaeological interest are uncovered during construction, further construction in the immediate area would cease until the requirements of Section 106 of the National Historic Preservation Act have been satisfied.

3.9 Cultural and Historical Resources

The A-1, A-2 and B-1/B-2 Test Stands at SSC have been designated as National Historic Landmarks and appear on the National Register of Historic Places. These test stands and associated control centers have been so designated because of their importance in the testing of Saturn rockets, and the importance of the Saturn rocket in landing men on the moon. None of the alternatives will alter the historical attributes of the test stands or have an effect on their status as National Historic Landmarks.

3.10 Transportation

Interstates 10 and 59 (I-10 and I-59), U.S. Highway 90, and Mississippi 607 serve the SSC area. Direct access to and through SSC from I-10 and I-59 is provided by Mississippi Highway 607.

Highway 607 also connects with U.S. Highway 90 approximately 13.5 kilometers (9 miles) southeast of SSC. The Center would increase the commuter population by 270 people on a daily basis. There will not be any substantial impact on surrounding public roads caused by this project.

SSC would make infrastructure improvements necessary for the Center and future growth by improving two roads within the Fee Area. Standby Road is a gravel road that connects Saturn Drive and the H1 Test Stand. This road would be paved for a length of 3.7 kilometers (2.3 miles). Main Line Road is a dirt road with one old bridge that would be upgraded to a four lane paved road with bridge replacement. Main Line road would be improved for a length of 4.8 kilometers (3 miles) to Texas Flat Road.

All alternatives for location of the Center would utilize these improved roads. The preferred location on Main Line Road would be closest to this new egress and would prevent additional congestion of roads within the SSC facility.

3.11 Waste Generation and Treatment

The solid waste generated at SSC is recycled or placed in the SSC Class A landfill. Some construction waste, rubble, and vegetation would be disposed in of in the SSC Class II rubbish site. Unacceptable wastes, such as hazardous waste, paint products, and solvents are excluded from disposal in the landfill and will be shipped off-site to pre-approved facilities for appropriate treatment or disposal. The "No Action Alternative" would produce no construction wastes.

3.12 Socioeconomics

Construction will require temporary employment of approximately 100 employees through construction contractors. The Center, during operations would accommodate approximately 270 employees. This will be a gradual increase to the total employment at SSC with approximately fifty percent of the total to be transfers from other Lockheed Martin facilities and fifty percent from the surrounding community. At the present time total employment at SSC is 4,418. There would be no significant socioeconomic impact due to construction activities or operations of the Center.

3.13 Public and Employee Health and Safety

SSC adheres to Occupational, Health, and Safety Administration (OSHA) standards for protection of employees on site. Procedures are in place to monitor and protect employees as necessary during construction. The SSC Integrated Contingency Plan (SPG 4130.3C) details specific emergency procedures to respond to natural and human-generated emergencies. There are on-going training programs to ensure emergency preparedness.

3.14 Pollution Prevention and Environmental Justice

In accordance with Executive Order (EO) 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, SSC has written a pollution prevention strategy into their Pollution Prevention Plan. This plan encourages elimination or reduction of the use and purchase of toxic chemicals, energy efficiency, solid waste reduction and recycling, water conservation, and hazardous waste and oil spill prevention. In order to meet the goals of the Pollution Prevention Plan, SSC has initiated projects affecting both the physical infrastructure and program/project operations.

In accordance with EO 12898, SSC's Environmental Justice Implementation Plan reflects agency policy established in "Environmental Justice Strategy", March 1995. Any disproportionately high and adverse effects of proposed programs at SSC on low income populations or minority populations will be identified and, if necessary, remedies will be provided through implementation of these plans. Because of the size of the SSC Buffer Zone surrounding the Fee Area and the alternative Center locations, there are no environmental justice concerns associated with this project.

4.0 Agencies and Individuals Consulted

No agencies or individuals have been consulted for this environmental assessment. Information on environmental concerns from agencies and individuals on SSC activities have been addressed in previous environmental assessments and environmental impact statements. No new impacts have been identified for the Propulsion, Thermal, and Metrology Center that require such consultations.

5.0 List of Preparers

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6.0 References

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7.0 Distribution List

Maury Oceanographic Library, Building 1003, Stennis Space Center, MS

Hancock County Library, Highway 90, Bay St. Louis, MS

Margaret Reed Crosby Library, Picayune, MS

St. Tammany Parish Library, Slidell, LA

U.S. Fish and Wildlife Service, 2524 South Frontage Road, Suite B, Vicksburg, MS

Mississippi Department of Archives and History, P.O. Box 571, Jackson, MS

National Aeronautics and Space Administration, Headquarters, Library, 300 E Street SW, Washington, DC