

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTICE 93-LaRC-2

National Environmental Policy Act; Finding of No Significant Impact; Modifications to Langley 14- By 22-Foot Subsonic Tunnel at Langley Research Center

AGENCY: National Aeronautics and Space Administration (NASA)

ACTION: Finding of No Significant Impact

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, as amended (NEPA) (42 U.S.C. 4321 et seq.), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500 - 1508), and NASA's Procedures for Implementing NEPA (14 CFR Subpart 1216.3), NASA has made a Finding of No Significant Impact (FONSI) with respect to the proposed modifications to the Langley 14-by 22-Foot Subsonic Tunnel at the Langley Research Center, located in the City of Hampton, Virginia. The existing tunnel facility is used for low-speed testing, specializing in take-off and landing of fixed-wing and rotor-wing aircraft.

DATE: Comments in response to this notice must be received in writing within 30 days of (first date of publication in local newspaper).

ADDRESS: Comments should be addressed to Tricia Romanowski, Environmental Engineer, Environmental Engineering Branch, SSQRD, M/S 429, 5 Hunsaker Loop, NASA/Langley Research Center, Hampton, Virginia 23681; Telephone (804) 864-7020.

The Environmental Assessment (EA) prepared for the proposed modifications to the Langley 14- by 22-Foot Subsonic Tunnel which supports this FONSI may be reviewed at:

Hampton Public Library, Main Branch, Reference Department, 4207 Victoria Boulevard, Hampton, Virginia

NASA Headquarters Information Center, Room 1H23, 300 E Street S.W., Washington, DC

A limited number of copies of the EA are available by contacting Tricia Romanowski, Environmental Engineer, at the address or telephone number indicated.

FOR FURTHER INFORMATION CONTACT:

Tricia Romanowski, Environmental Engineer, Environmental Engineering Branch, SSQRD, M/S 429, 5 Hunsaker Loop, NASA/Langley Research Center, Hampton, Virginia 23681; Telephone (804) 864-7020.

SUPPLEMENTARY INFORMATION: NASA has reviewed the EA prepared for the proposed modifications to the Langley 14- by 22-Foot Subsonic Tunnel and has determined that it represents an accurate and adequate analysis of the scope and level of associated environmental impacts. The EA is incorporated by reference in this FONSI.

NASA is proposing to modify the existing Langley 14- by 22-Foot Subsonic Tunnel by constructing a new model support system. This system will provide ground-based wind-tunnel data of actual flight conditions during landing and high-rate angular motions in maneuvering. Recent experimental results have shown that rate-of-descent is a very important parameter in analyzing ground effects. Flight data have shown that aircraft undergoing high-rate angular maneuvers can experience engine compressor stalls due to flow problems associated with the high-incidence flow entering the engine inlets. The next generation of fighter aircraft will be required to perform short take-offs and landing, and will need to possess extreme maneuver capability. Currently, no capability exists for wind-tunnel investigation of rate-of-descent effects and large-amplitude, high-rate angular motion.

The proposed action consists of providing a new computer-controlled model support system, powered by a 5,000-psi hydraulic system to provide vertical velocities up to 15 feet/sec (4.6 meters/sec) and pitch angular rates up to 60 deg/sec. Vertical and pitch motions will be commanded separately or in combination as required by the test program. The complete model support system consists of a new vertical post assembly and drive mechanisms, a new model support cart to provide the required system stiffness and impedance, yaw motion, and an 8-foot (2.4-meter) by 8-foot (2.4-meter) moving ground plane located ahead of the post in the floor of the cart. It is estimated that the new model system will be used at the most two times per year for about 4 to 6 weeks of testing.

Two alternatives to the proposed modifications were considered: the No-Action Alternative (i.e., no construction of the new model support system) and the New-Construction alternative (i.e., construction of a new wind tunnel facility capable of supporting the desired investigations). Cancellation of the proposed modifications will not provide the needed capability for wind-tunnel investigation of rate-of-descent effects and large-amplitude, high-rate angular motion. The New-Construction alternative is time- and cost-prohibitive.

No environmental impacts were identified as a result of the environmental assessment. Construction will be interior to the building and will not require ground disturbance. No change will occur in the quantity or quality of domestic wastewater from the facility, which will continue to be discharged to the Hampton Roads Sanitation District under permit. No air emissions will result from project construction. Construction noise will be minimal, and

undetectable outside of the facility. There will be no change in the air emissions or noise from operation of the Langley 14- by 22-Foot Subsonic Tunnel. Any hazardous wastes generated during construction will be disposed in accordance with a hazardous waste disposal plan, to be approved by the Contracting Officer prior to construction.

The Langley 14- by 22-Foot Subsonic Tunnel is located in a densely developed area of the Langley Research Center, and is not located in any wetlands or floodplains. No threatened or endangered species or critical habitats will be affected as a result of the project. The proposed modifications will not affect the integrity and function of the tunnel facility. The proposed action will not affect Virginia's coastal resources, and will be consistent with the Commonwealth of Virginia's Coastal Resources Management Program. No other matters of potential environmental concern have been identified. Under the planned construction of the modifications, and operation of the Langley 14- by 22-Foot Subsonic Tunnel after the modifications are complete, no significant effects to the environment are anticipated.

On the basis of the Langley 14- by 22-Foot Subsonic Tunnel EA and underlying reference documents, NASA has determined that the environmental impacts associated with this project will not individually or cumulatively have a significant effect on the quality of the environment. Therefore, an Environmental Impact Statement (EIS) is not required. NASA will take no final action or authorize construction activities prior to the expiration of the 30-day comment period.

for Belinda H. Adams
H. Lee Beach
Acting Director
NASA/Langley Research Center

5/4/93
Date

Concurrence:

Billie J. McGarvey
Billie J. McGarvey
Director, Facilities Engineering Division
NASA Headquarters

4/29/93
Date