

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice 94-081]

National Environmental Policy Act; Mars Pathfinder Mission

AGENCY: National Aeronautics and Space Administration (NASA).

ACTION: Finding of No Significant Impact.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (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 policy and regulations (14 CFR Part 1216 Subpart 1216.3), NASA has made a finding of no significant impact (FONSI) with respect to the proposed Mars Pathfinder mission, which would involve a flight to and landing on Mars. The baseline mission calls for the Mars Pathfinder spacecraft to be launched aboard a Delta II 7925 from Cape Canaveral Air Station (CCAS), Florida, in December 1996.

DATES: Comments on the FONSI must be provided in writing to NASA on or before November 23, 1994.

ADDRESSES: Comments should be addressed to Mark P. Saunders, NASA Headquarters, Code SL, 300 E Street SW, Washington, DC 20546. The environmental assessment (EA) prepared for the Mars Pathfinder mission which supports this FONSI may be reviewed at:

(a) NASA Headquarters, Library, Room 1J20, 300 E Street SW, Washington, DC 20546.

(b) Spaceport U.S.A., Room 2001, John F. Kennedy Space Center, FL 32899.

In addition, the EA may be examined at the following NASA locations by contacting the pertinent Freedom of Information Act Office:

(c) NASA, Ames Research Center, Moffett Field, CA 94035 (415-604-4191).

(d) NASA, Dryden Flight Research Center, Edwards, CA 93523 (805-258-3047).

(e) NASA, Goddard Space Flight Center, Greenbelt, MD 20771 (301-286-0730).

(f) Jet Propulsion Laboratory, NASA Resident Office, 4800 Oak Grove Drive, Pasadena, CA 91109 (818-354-5179).

(g) NASA, Johnson Space Center, Houston, TX 77058 (713-483-8612).

(h) NASA, Langley Research Center, Hampton, VA 23665 (804-864-6125).

(i) NASA, Lewis Research Center, 21000 Brookpark Road, Cleveland, OH 44135 (216-433-2902).

(j) NASA, Marshall Space Flight Center, AL 35812 (205-544-4523).

(k) NASA, Stennis Space Center, MS 39529 (601-688-2164).

A limited number of copies of the EA are available by contacting Mark P. Saunders, at the address or telephone number indicated herein.

FOR FURTHER INFORMATION CONTACT: Mark P. Saunders, 202-358-0299.

SUPPLEMENTARY INFORMATION: NASA has reviewed the EA prepared for the Mars Pathfinder mission 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.

The planned Mars Pathfinder mission would deliver a very small rover vehicle (hereinafter "Rover") inside a landing craft (hereinafter "Lander") to the surface of Mars' northern hemisphere in July 1997 to demonstrate enabling systems and technologies for delivering small science payloads to that planet. The proposed action calls for using a Delta II 7925 launch vehicle to inject the Mars Pathfinder spacecraft into a direct Earth-Mars trajectory in December 1996. The Lander would enter the martian atmosphere and descend to the surface using an aeroshell, parachute, and solid fuel rockets to slow the descent. An airbag system would soften the final landing shock. The Rover would then be deployed to the surface from the Lander. The Lander would serve as a telemetry relay for the Rover to receive commands from and return data to Earth. The Rover design would include three Lightweight Radioisotope Heater Units (LWRHU's) as an additional heat source to keep sensitive electronic components warm enough to operate. Each LWRHU would contain 2.7 grams (about 0.1 ounce) of

plutonium-238 dioxide. The Rover would carry an alpha/proton/x-ray spectrometer (APXS) which uses a radioactive alpha particle source of curium-244 (approximately 2.78 gigabecquerels or 75 millicuries). The primary Lander mission would last 30 days, and the primary Rover mission 7 days.

Scientific objectives of the Mars Pathfinder mission include imaging of the martian surface, atmospheric structure and meteorology data collection, and investigation of the martian surface composition at multiple sites in the vicinity of the Lander. The mission also will include demonstrations of enabling technologies and technical approaches for possible future Mars missions. These demonstrations will include a simplified cruise approach to transfer the Lander from Earth to Mars with a direct atmospheric entry from transfer orbit, extended (minimum 30 days) surface operations using only solar and battery power to operate all Lander systems, and direct-link radio communication between the Lander and Earth. Traversing martian terrain, the Rover would conduct microver technology experiments and provide data on capabilities, such as wheel/soil interactions and hazard detection. The Rover also would employ its imaging equipment to allow assessment of the Lander's condition and gather scientific data on the rocks and soil.

Alternatives that were evaluated include: (1) No-action (i.e., no Mars Pathfinder mission); (2) launch vehicle options, including the Space Shuttle, Titan and Atlas configurations, foreign launch vehicles, and other Delta configurations; and (3) alternate methods of providing supplemental heat to or retaining heat in the Rover electronics enclosure. Failure to undertake the Mars Pathfinder mission would result in a lost opportunity to gain further scientific knowledge of Mars and would prevent demonstration of technologies for efficient delivery of scientific payloads

to Mars. Of the launch vehicles evaluated, the Delta II 7925 most closely matches the mission's needs, is relatively low-cost, has superior reliability, and minimizes adverse environmental impacts. Because of the small volume available for insulation on the Rover, alternate heating methods (i.e., no LWRHU's) for the Rover electronics can not provide a suitable thermal environment for operation of the electronics while satisfying mission objectives.

Expected impacts to the human environment associated with the mission arise almost entirely from the launch of the Delta II 7925. Air emissions from the ground-level exhaust consist primarily of carbon monoxide, hydrochloric acid, aluminum oxide in soluble and insoluble forms, carbon dioxide, and water. Air impacts will be short-term and not substantial. Short-term water quality and noise impacts, as well as short-term effects on wetlands and plants and animals, will occur in the vicinity of the launch complex. None of these effects will be substantial. There will be no impact on threatened or endangered species or critical habitat, cultural resources, or floodplains. There were no accident scenarios and associated environments identified for the Delta II 7925 launch system that would result in the release of plutonium dioxide from the Rover LWRHU's. While accident environments could cause release of the curium used in the APXS, the amount of curium is very small, and the associated incremental health risk is negligible.

On the basis of the Mars Pathfinder EA and underlying reference documents, NASA has determined that the environmental impacts associated with this proposed mission will not individually or cumulatively have a significant effect on the quality of the human environment. NASA will take no final action prior to the expiration of the 30-day comment period.

Wesley T. Huntress, Jr.,
Associate Administrator for Space Science.
[FR Doc. 94-26270 Filed 10-21-94; 8:45 am]
BILLING CODE 7510-01-M
