

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTICE (00-)

National Environmental Policy Act; Mars Surveyor 2001 mission

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 (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508), and NASA policy and procedures (14 CFR Part 1216, Subpart 1216.3), NASA is providing notice that although a Draft Environmental Impact Statement (DEIS) for the Mars Surveyor 2001 Mission was prepared and public comments were elicited and received, a Final Environmental Impact Statement (FEIS) will not be prepared. Instead, NASA has made a finding of no significant impact (FONSI).

The Mars Surveyor 2001 (MS 01) mission as proposed in the DEIS originally consisted of the launch and operation of two separate spacecraft - the MS 01 orbiter and the MS 01 lander/rover. The DEIS addressed the potential environmental impacts associated with implementation of this mission configuration (the Proposed Action) and included a risk assessment for potential launch accidents involving the release of radioactive material from the MS 01 lander/rover

spacecraft. The MS 01 orbiter spacecraft would carry no radioactive material or other extremely hazardous materials or equipment and, hence, would involve a conventional launch entailing no significant effects to the quality of the human environment. The DEIS also addressed the potential environmental impacts of alternatives to this Proposed Action as well as the No Action alternative.

Events that occurred during the intervening months since publication of the DEIS, including loss of the Mars Polar Lander mission on December 3, 1999, early in the public review period for the DEIS, have resulted in a reevaluation by NASA of the Mars Surveyor 2001 mission. As a result of that reevaluation, NASA has proposed to reconfigure the Mars Surveyor 2001 mission to launch only the MS 01 orbiter spacecraft in 2001. Thus the FONSI issued today covers the proposed reconfigured Mars Surveyor 2001 mission, specifically launch of the MS 01 orbiter only. Should NASA decide at some future date to launch the MS 01 lander/rover spacecraft, a separate NEPA document will be prepared in accordance with applicable policy and procedures.

The MS 01 orbiter would be launched in April 2001 from Cape Canaveral Air Force Station (CCAFS), Florida, onboard a Delta II 7925 expendable launch vehicle.

DATES: Comments in response to this FONSI must be provided in writing to NASA on or before (insert date 30 days from date of publication the Federal Register).

ADDRESSES: Comments in response to this FONSI should be addressed to Mr. Mark R. Dahl, NASA Headquarters, Code SD, 300 E Street SW, Washington, DC 20546. The DEIS prepared for the Mars Surveyor 2001 mission which supports this FONSI may be reviewed at:

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

2. NASA, Spaceport USA, Room 2001, John F. Kennedy Space Center, Florida, 32899 (321-867-2622). Please call Ms. Penny Myers at 321-867-8007 so that arrangements can be made.

3. Jet Propulsion Laboratory, Visitors Lobby, Building 249, 4800 Oak Grove Drive, Pasadena, CA 91109 (818-354-5179).

Other locations where the DEIS can be examined are listed in the Supplementary Information section below.

A limited number of copies of the DEIS are available to persons wishing a copy by contacting Mr. Dahl at the address or telephone number provided herein. The DEIS is also available in Adobe Acrobat® Portable Document Format (PDF) at <http://spacescience.nasa.gov/pubs/Mars01EIS/ms01webpage.html> on the Internet.

FOR FURTHER INFORMATION CONTACT: Mr. Mark R. Dahl, 202-358-1544.

SUPPLEMENTARY INFORMATION: The DEIS may also be examined at the following NASA locations by contacting the pertinent Freedom of Information Act Office:

1. NASA, Ames Research Center, Moffett Field, CA 94035 (650-604-4191)
2. NASA, Dryden Flight Research Center, Edwards, CA 93523 (661-258-3449)
3. NASA, Glenn Research Center, 21000 Brookpark Road, Cleveland, OH 44135 (216-433-2755)
4. NASA, Goddard Space Flight Center, Greenbelt, MD 20771 (301-286-6255)
5. NASA, Johnson Space Center, Houston, TX 77058 (281-483-8612)
6. NASA, Langley Research Center, Hampton, VA 23665 (757-864-2497)
7. NASA, Marshall Space Flight Center, Huntsville, AL 35812 (256-544-1837)
8. NASA, Stennis Space Center, MS 39529 (228-688-2164).

On November 29, 1999, NASA published its Notice of Availability for the DEIS for the Mars Surveyor 2001 Mission (64 FR 66668), and distributed over 125 copies to potentially interested Federal, State and local agencies, organizations,

and individuals. In addition, the DEIS was available in electronic format from a NASA server on the Internet. The U.S. Environmental Protection Agency published its Notice of Availability on December 3, 1999 (64 FR 67897), initiating the 45-day review and comment period.

At the time of publication of the DEIS, NASA's Proposed Action was to continue preparations for and to implement the Mars Surveyor (MS 01) mission to Mars. The MS 01 mission was to consist of two separate launches, one containing an orbiter spacecraft and the other containing a lander/rover spacecraft. NASA proposed to launch the MS 01 orbiter spacecraft from Vandenberg Air Force Base (VAFB), California, in March/April 2001 onboard a Delta II 7925 expendable launch vehicle, and the MS 01 lander/rover spacecraft from Cape Canaveral Air Force Station (CCAFS), Florida, in April 2001 onboard a Delta II 7425.

The purpose of and need for the action addressed in the DEIS was to further the scientific objectives of NASA's Mars Surveyor Program by continuing the exploration and characterization of the planet. The Mars Surveyor Program had consisted of the Mars Global Surveyor, already in orbit about Mars and conducting its scientific mission, and the Mars Surveyor 1998 (MS 98) orbiter and lander spacecraft. At the time of publication of the MS 01 DEIS, the MS 98 orbiter had

failed to achieve orbit about Mars and was declared lost; and the MS 98 lander, the Mars Polar Lander, was on its final approach to entry into the atmosphere of Mars.

Specifically, at the time the DEIS was issued, the proposed MS 01 mission would have continued the global reconnaissance of Mars (via the MS 01 orbiter) and would have intensively studied a local area of the planet (via the MS 01 lander/rover). During its planned mapping phase of one Martian year (about two Earth years) the MS 01 orbiter would have conducted a detailed mineralogical analysis of the planet's surface and measured the radiation environment. The orbiter would have also acted as a communications relay for the lander/rover. During its 90-day primary mission the MS 01 lander/rover would have performed in situ science on the surface of Mars, exploring a potential landing site for future missions in the mid-latitude highlands of the planet by studying soil and atmospheric chemistry and radiation at the surface.

Two instruments on the MS 01 lander and two instruments on the rover would have carried minor radioactive sources. The rover would also have used three radioisotope heater units for thermal control. The total radioactive inventory onboard the MS 01 lander/rover would have been approximately 3.70×10^{12} Bq (100 Ci).

Alternatives to the Proposed Action that were evaluated in the DEIS consisted of the following:

a) Orbiter and Lander-Only Mission Alternative: Launch the MS 01 orbiter as planned in the Proposed Action; eliminate the rover, and launch the lander-only spacecraft as planned in the Proposed Action; perform remote science data gathering from orbit and stationary in situ science by the lander.

b) Orbiter-Only Mission Alternative: Launch the MS 01 orbiter as planned in the Proposed Action; eliminate the lander/rover launch; perform only remote science data gathering from orbit.

c) No-Action Alternative: NASA would cease preparations for and not implement the MS 01 mission.

In the DEIS, the Delta II 7925 (with nine strap-on solid rocket motors called GEMs) was used as the basis for assessing environmental impacts from both launch sites. The environmental impacts of the Delta II 7425 (with only four GEMs) would be expected not to exceed those of the Delta II 7925.

The DEIS addressed the environmental impacts of normal launches of the two spacecraft comprising the Proposed Action. Such impacts would be associated principally with the exhaust emissions from each of the Delta II launch vehicles. These effects would include short-term impacts on noise levels, air

quality within the exhaust cloud at and near the launch pads, and the potential for acidic deposition on the vegetation, wetlands, and surface water bodies at and near each launch complex, particularly if a rain storm occurred. Some short-term ozone degradation would occur along the flight paths as the launch vehicles pass through the stratosphere and deposits ozone-depleting chemicals from the solid rocket motors.

The DEIS evaluated a variety of non-radiological environmental impacts that might arise from accidents that could occur during preparation for and launch of the MS 01 spacecraft at CCAFS and VAFB. The potential for off-site consequences would be limited primarily to a liquid propellant spill during fueling operations of the Delta II second stage and a launch failure at or near the launch pad. A launch vehicle failure on or near the launch area during the first few seconds of flight could result in the release of the propellants (solid and liquid) onboard the Delta II, the upper stage, and the spacecraft. The resulting emissions would resemble those resulting from a normal launch. Liquid propellants would largely burn with some unburned propellant dispersed in the atmosphere. Some unburned solid and liquid propellants could enter surface water bodies and the ocean. Falling debris would be expected to land on or near the launch

pad, resulting in secondary ground-level explosions and localized fires.

For both normal launches and non-radiological environmental impacts arising from an accident, there would be no impacts on cultural resources or floodplains. No other non-radiological environmental impacts of concern have been identified. The launch of Delta II vehicles from CCAFS are covered by existing U.S. Air Force (USAF) Environmental Assessments and FONSI's. There have been no subsequent substantial changes to the Delta II launch vehicle that are relevant to environmental concerns. In addition, there are no significant new circumstances or information relevant to environmental concerns that bear on the launch of the Delta II class vehicle.

The DEIS also addressed a concern associated with launch of the MS 01 lander/rover spacecraft involving potential launch accidents that could result in release of some of the radioactive material onboard the lander/rover spacecraft. NASA's cooperating agency, the U.S. Department of Energy (DOE), performed a radiological risk assessment of potential accidents for the MS 01 lander/rover. The DOE's risk assessment for the MS 01 lander/rover indicated that the expected impacts of released radioactive material on or near the launch area, and on a global basis, would be small.

The 45-day public comment period on the DEIS closed on January 17, 2000. A total of six comment letters were received: two from Federal agencies, three from State agencies, and one from a local agency. The comments addressed the following issues: NASA's compliance with the Endangered Species Act at the VAFB launch site; NASA's use of Best Management Practices; and questions regarding the methodologies used to estimate radiological consequences. These comments provided no new information or analyses that indicated a need to change the assessment of impacts presented in the DEIS.

Following the loss of the Mars Polar Lander, NASA instituted comprehensive reviews by high-level panels of experts not just of the loss of this spacecraft, but also of its overall approach to Mars exploration. These reviews resulted in a number of reports that have been publicly released. NASA is responding to these reports and recommendations, and is developing a broad restructuring of its approach to Mars exploration. Recommendations were also made that would directly affect implementation of the MS 01 mission. Specifically, it was recommended that launch of the MS 01 lander/rover spacecraft mission component be delayed to a future date yet to be determined, and that the orbiter spacecraft be launched in 2001 as originally proposed in the

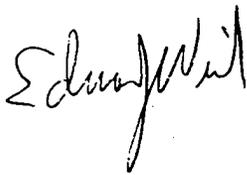
DEIS for the MS 01 Mission with the exception that the launch take place from CCAFS instead of VAFB. In March 2000, NASA adopted these recommendations regarding the Mars Surveyor 2001 mission.

The assessment of non-radiological environmental impacts in the DEIS was prepared on the basis of the larger Delta II 7925 vehicle at both launch sites. Therefore, the assessment of impacts both for a normal launch of the MS 01 lander/rover from CCAFS and for potential launch accidents that do not involve release of radioactive material is directly applicable to launch of the MS 01 orbiter from CCAFS and provides a conservative upper bound on those impacts. Furthermore, since the MS 01 orbiter does not utilize radioactive material, the risk assessment of potential radiological consequences for a launch accident involving the MS 01 lander/rover at CCAFS does not apply. Finally, the question submitted during the public comment period regarding compliance with the Endangered Species Act at VAFB does not pertain to the proposed MS 01 orbiter launch from CCAFS. Thus, given that the proposed reconfiguration of the Mars Surveyor 2001 mission to an orbiter-only launch from CCAFS does not entail any new or substantial changes to the potential environmental impacts evaluated in the DEIS, NASA has concluded that the DEIS adequately and accurately reflects the environmental impacts

of the launch of a MS 01 orbiter spacecraft from CCAFS using a Delta II 7925 launch vehicle.

On the basis of the DEIS and USAF NEPA documentation on the Delta II class of launch vehicles, NASA has determined that the preparations for and launch and operation of an MS 01 orbiter-only mission would not individually or cumulatively have a significant effect on the quality of the human environment. Should NASA decide to launch the MS 01 lander/rover to Mars at some future date, additional environmental documentation will be prepared.

Therefore, NASA has made a finding of no significant impact and has determined that issuance of a Final Environmental Impact Statement is not appropriate. NASA will take no final action prior to the expiration of the 30-day comment period.



Edward J. Weiler

Associate Administrator for
Space Science