

amount and type of radioactive material used in a mission, the protective features of the devices containing the radioactive material, the probability of an accident which can damage the radioactive material, and the accident environments (*e.g.*, propellant fires, debris fragments, and blast overpressure). The risks associated with a Mars exploration mission carrying radioactive material are, therefore, expected to be similar to those estimated for earlier missions. The population and individual risks associated with prior missions that have made use of radioactive material have all been shown to be relatively small.

Any person, organization, or governmental body or agency interested in receiving a copy of NASA's Record of Decision after it is rendered should so indicate by mail or electronic mail to Mr. Dahl at the addresses provided above.

**Jeffrey E. Sutton,**

*Assistant Administrator for Institutional and Corporate Management.*

[FR Doc. 04-9133 Filed 4-21-04; 8:45 am]

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## **NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

[Notice 04-053]

### **National Environmental Policy Act; Development of Advanced Radioisotope Power Systems**

**AGENCY:** National Aeronautics and Space Administration (NASA).

**ACTION:** Notice of intent to prepare a Tier I Environmental Impact Statement (EIS) and to conduct scoping for the development of advanced Radioisotope Power Systems.

**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's policy and procedures (14 CFR subpart 1216.3), NASA intends to conduct scoping and to prepare a Tier I EIS for the development of advanced Radioisotope Power Systems (RPSs). NASA, in cooperation with the U.S. Department of Energy (DOE), proposes to develop in the near-term two types of advanced RPSs to satisfy a wide range of future space exploration mission requirements. These advanced RPSs would both be capable of functioning in the vacuum of space and in the environments encountered on the

surfaces of planets, moons and other solar system bodies. These new power systems would be based upon a modified version of the General Purpose Heat Source (GPHS) previously developed by DOE and used in the Radioisotope Thermoelectric Generators (RTGs) for NASA's Galileo, Ulysses, and Cassini missions. This modification would add additional graphite material to the graphite aeroshell. The GPHS-based advanced RPSs would be capable of providing long-term, reliable electrical power to spacecraft across the range of conditions encountered in space and planetary surface missions.

The Tier 1 EIS will also address in general terms the development and qualification for flight of advanced RPSs that use passive or dynamic systems to convert the heat generated from the decay of plutonium to electrical energy, and related long-term research and development of technologies that could further enhance the capability of future RPS systems. The Multi-Mission Radioisotope Thermoelectric Generator (MMRTG) and Stirling Radioisotope Generator (SRG) development activity would include, but not necessarily be limited to: (1) New power conversion technologies to more efficiently use the heat energy from the GPHS module, and (2) improving the versatility of the RPS so that it would be capable of operating for extended periods in the vacuum of space and in planetary atmospheres. Specific future developments of a new generation of space qualified RPSs (*e.g.*, more efficient systems than the proposed MMRTG or SRG, or systems with smaller electrical power output) would be the subject of separate Tier II environmental documentation.

DOE will be a cooperating agency in the preparation of this Tier 1 EIS.

**DATES:** Interested parties are invited to submit comments on environmental concerns in writing on or before June 7, 2004, to assure full consideration during the scoping process.

**ADDRESSES:** Comments should be addressed to Dr. George Schmidt, NASA Headquarters, Code S, Washington, DC 20546-0001. While hardcopy comments are preferred, comments may be sent by electronic mail to: [rpseis@nasa.gov](mailto:rpseis@nasa.gov).

**FOR FURTHER INFORMATION CONTACT:** Dr. George Schmidt, NASA Headquarters, Code S, Washington, DC 20546-0001, by telephone at 202-358-0113, or by electronic mail at [rpseis@nasa.gov](mailto:rpseis@nasa.gov).

**SUPPLEMENTARY INFORMATION:** NASA's future scientific exploration of the solar system is planned to include missions throughout the solar system and potential missions to the surfaces of planets, moons and other planetary

bodies. Many of these missions cannot be accomplished with current energy production and storage technologies available to NASA, such as batteries, solar arrays, fuel cells, and the existing radioisotope power system (the GPHS RTG). To enable this broad range of missions, NASA is proposing to develop in the near-term, two types of RPSs capable of functioning both in the vacuum of space and in the environments encountered on the surfaces of planets, moons and other planetary bodies.

NASA proposes to develop these advanced RPSs to enable missions with substantial longevity, flexibility, and greater scientific exploration capability. Some possibilities are:

- Comprehensive and detailed planetary investigations and creating comparative data sets of the outer planets—Jupiter, Saturn, Uranus, Neptune and Pluto and their moons. The knowledge gained with these data sets would be vital to understanding other recently discovered planetary systems and general principles of planetary formation.

- Comprehensive exploration of the surfaces and interiors of comets, possibly including returned samples to better understand the building blocks of our solar system and ingredients contributing to the origin of life.

- Expanded capabilities for surface and on-orbit exploration, and sample return missions to Mars and other planetary bodies (including the Earth's moon) to greatly improve our understanding of planetary processes, particularly those affecting the potential for life.

The current DOE radioisotope power system, the GPHS RTG, does not meet these new or evolving mission requirements. The heat-to-electricity converter for the existing RTG produces about 285 watts of electrical power, but it is not designed to perform for an extended period in planetary atmospheres such as that on Mars. The two new proposed types of RPSs would be developed to meet the diverse needs of future NASA space exploration missions.

Near-term advanced RPS development would focus on two power systems, the MMRTG and the SRG. The MMRTG would build upon the spaceflight-proven passive thermoelectric power conversion technology incorporating improvements to allow extended operation in planetary atmospheres. For the SRG, NASA would develop a new space-qualified dynamic power conversion system, a Stirling engine, that would more efficiently convert the heat from

the decay of plutonium into electrical power and therefore use less plutonium to generate comparable amounts of electrical power. Both of these systems would provide up to about 100 watts of electric power and would be capable of functioning both in the vacuum of space and in the environments encountered on the surfaces of the planets, moons and other bodies. Differences in SRG and MMRTG mechanical and thermal interfaces would allow a broad range of mission specific spacecraft designs. More than one MMRTG or SRG could be integrated with a spacecraft to provide power levels exceeding 100 watts electrical.

This Tier I EIS will address in broad terms the technology development activities of NASA, DOE, and the industrial contractors involved in:

- Development and testing of advanced RPSs through final design, testing, and fabrication of flight qualified SRGs and MMRTGs, and
- Long-term research and development of technologies that could enhance the capabilities of future radioisotope power systems (e.g., systems that convert heat into electricity more efficiently and smaller systems).

It is anticipated that development and test activities involving use of radioisotopes would be performed at existing DOE sites that currently perform similar activities. Fuel processing and fabrication would likely occur at existing facilities at Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico, which are currently used for the fabrication of the fuel for the GPHS modules. Advanced RPS assembly and testing would likely be performed at Argonne National Laboratory—West (west of Idaho Falls, Idaho). These activities were previously carried out at DOE's Mound, Ohio facility. Additional safety testing of an integrated advanced RPS could be performed at one or more of several existing facilities; including DOE facilities such as LANL and Sandia National Laboratory (Albuquerque, New Mexico) or the U.S. Army's Aberdeen Proving Grounds (Aberdeen, Maryland). Activities associated with the development, testing, and verification of the power conversion systems could be performed at several existing facilities including some NASA facilities (Glenn Research Center at Lewis Field, Cleveland, Ohio; and the Jet Propulsion Laboratory, Pasadena, California) and several commercial facilities (Boeing Rocketdyne, Canoga Park, California; Teledyne Energy Systems, Hunt Valley, Maryland; Stirling Technology Corporation, Kennewick, Washington;

and Lockheed Martin, Valley Forge, Pennsylvania).

NASA plans to address the environmental impacts of the development and use of Advanced RPSs through a two-tiered NEPA process. This Tier I EIS will address the proposed development, overall purpose and need for the development of advanced RPSs, development, testing and fabrication of the MMRTG and SRG. This Tier 1 EIS will also address proposed research and development work regarding technologies that could further enhance the capabilities of future RPSs. Specific future developments of a new generation of space qualified RPSs (e.g., more efficient systems than the proposed MMRTG or SRG, or systems with smaller electrical power output) would be the subject of separate Tier II environmental documentation, as appropriate, using the most pertinent data and analysis directly related to those developments. Mission-specific use of any of these RPSs would be subject to separate environmental documentation.

Alternatives to be considered in this Tier I EIS will include, but will not necessarily be limited to the No Action Alternative, by which NASA would not pursue development of advanced RPSs.

Written public input and comments on alternatives and environmental impacts, and concerns associated with the development of advanced RPSs are hereby requested.

**Jeffrey E. Sutton,**

*Assistant Administrator for Institutional and Corporate Management.*

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## **NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**

[Notice 04-055]

### **Notice of Prospective Patent License**

**AGENCY:** National Aeronautics and Space Administration.

**ACTION:** Notice of Prospective Patent License.

**SUMMARY:** NASA hereby gives notice that StarGate Research, Inc., of Denver, CO, has applied for a partially exclusive license to practice the invention described and claimed in U.S. Patent No. 6,354,540 identified as Case No. MSC-22931-1, and entitled "Androgynous, Reconfigurable Closed Loop Feedback Controlled Low Impact Docking System With Load Sensing Electromagnetic Capture Ring." The patent is assigned to the United States

of America as represented by the Administrator of the National Aeronautics and Space Administration. Written objections to the prospective grant of a license should be sent to the Johnson Space Center.

**DATES:** Responses to this notice must be received by May 7, 2004.

**FOR FURTHER INFORMATION CONTACT:** Theodore Ro, Patent Attorney, NASA Johnson Space Center, Mail Stop HA, Houston, TX 77058-8452; telephone (281) 244-7148.

Dated: April 19, 2004.

**Keith T. Sefton,**

*Chief of Staff, Office of the General Counsel.*

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## **NATIONAL FOUNDATION ON THE ARTS AND THE HUMANITIES**

### **Determination of the Chairman of the National Endowment for the Arts as to Certain Advisory Committees: Public Disclosure of Information and Activities**

The National Endowment for the Arts utilizes advice and recommendations of advisory committees in carrying out many of its functions and activities.

The Federal Advisory Committee Act, as amended (Pub. L. 92-463), governs the formation, use, conduct, management, and accessibility to the public of committees formed to advise and assist the Federal Government. Section 10 of the act specifies that department and agency heads shall make adequate provisions for participation by the public in the activities of advisory committees, except to the extent a determination is made in writing by the department or agency head that a portion of an advisory committee meeting may be closed to the public in accordance with subsection (c) of section 552b of title 5, United States Code (the Government in the Sunshine Act).

It is the policy of the National Endowment for the Arts to make the fullest possible disclosure of records to the public, limited only by obligations of confidentiality and administrative necessity. Consistent with this policy, meetings of the following Endowment advisory committees will be open to the public except for portions dealing with the review, discussion, evaluation, and/or ranking of grant applications: Combined Arts, Fellowships, Leadership Initiatives, Partnership, Special Projects, and the Federal Advisory Committee on International Exhibitions.