

National Aeronautics and  
Space Administration  
**Office of the Administrator**  
Washington, DC 20546-0001



July 12, 2010

Dr. Kenneth Ford  
Chairman  
NASA Advisory Council  
Washington, DC 20546

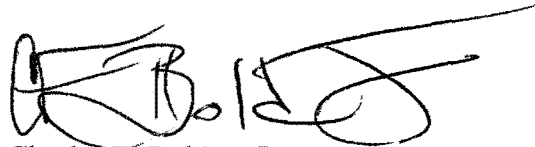
  
Dear Dr. Ford:

Enclosed are NASA's responses to the three recommendations from the NASA Advisory Council meeting held on February 18-19, 2010, at NASA Headquarters.

Please do not hesitate to contact me if the Council would like further background on the information provided in the enclosures.

I appreciate the Council's thoughtful consideration of these issues and welcome its continued observations, recommendations, and advice concerning the U.S. civil space program. I look forward to working closely with you and members of the Council in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Bolden, Jr.", with a long horizontal stroke extending to the right.

Charles F. Bolden, Jr.  
Administrator

3 Enclosures:

1. 2010-01-01 (SC-01) Restart of Domestic Plutonium 238 (Pu-238) Production
2. 2010-01-02 (SC-02) Technology Space Flight Test Program
3. 2010-01-03 (SC-03) Establish Program Analysis Groups (PAGs) in Astrophysics

**Tracking Number: 2010-01-01 (SC-01)**  
**Restart of Domestic Plutonium-238 (Pu-238) Production**

**NASA Advisory Council Recommendation:**

The Science Committee urges NASA to work with the Department of Energy (DoE) to seek an equitable solution for the restart of domestic production of Pu-238, and for the development and testing of advanced Radioisotope Power Systems (RPSs). The Science Committee requests to be kept informed of developments on this issue at the next meeting.

**Major Reasons for the Recommendation:**

The use of RPS power sources is vital to robotic exploration of the outer solar system and to many other situations where solar power is insufficient or not available. Without Pu-238 to fuel RPSs, exploration of the outer solar system will have to be abandoned and other exploration objectives curtailed. Pu-238 production in the US has been stopped and the amount available from Russia will not meet the need for robotic planetary exploration into the next decade. Russia has also stopped shipment of Pu-238 pending contract renegotiation. The 2011 budget contains funds for restarting Pu-238 production by DoE. The budget is sufficient for production of only a certain amount per year, the issue being resolution of the amount required by NASA between requirements in SMD and in ESMD. Additional funding will be necessary if the amount of Pu-238 required by NASA exceeds the value presumed by the 2011 budget.

**NASA Response**

NASA agrees with this recommendation and plans the following actions:

1. As SMD reported at the April meeting of the NAC Science Committee, NASA continues to work with DoE and the Office of Management and Budget on the finalization of a restart plan for Pu-238 as required by the Energy and Water Appropriations Subcommittee conference report. The restart plan has been cleared by NASA and is now in formal interagency concurrence. To date, NASA has made good progress, and we will continue to report to the NAC as events warrant.
2. SMD and ESMD have agreed in principle on an equitable distribution of funding in FY 2011 to support NASA's contribution in the President's budget request of \$15M.

**Tracking Number: 2010-01-02 (SC-02)**  
**Technology Space Flight Test Program**

**NASA Advisory Council Recommendation:**

The Science Committee urges that NASA institute a technology space flight test program to close the “mid-technology readiness level (TRL) gap” between Earth-based tests and flight readiness. This program would take testing of new flight technologies and instruments to the next level, bridging a critical gap to keeping the technology pipeline open and sustaining a robust technology development community.

**Major Reasons for the Recommendation:**

There is a persistent gap between testing of new flight subsystem and instrument technologies on Earth and their eventual acceptance for use in space flight. This is commonly termed the “mid-TRL” level gap. Technical reviewers of proposals for flight projects, and flight project managers, are very reluctant to approve new technologies for flight that have no previous flight heritage. To eliminate this conundrum, a flight program is required whose sole purpose is to take the necessary risks to fly new technologies and certify them for science and exploration flights. NASA’s past “New Millennium” technology flight program used to provide this service and should be revived.

**NASA Response:**

NASA agrees with this recommendation and plans the following actions:

1. As the NASA Chief Technologist reported at the April 2010 meeting of the NAC Science Committee, NASA has included in the President’s FY 2011 budget request a crosscutting technology demonstrations program.
2. The President’s FY 2011 budget request is currently under review by the U.S. Congress. NASA will monitor the progress of the President’s budget request and will report back to the NAC as events warrant.

**Tracking Number 2010-01-03 (SC-03)**  
**Establish Program Analysis Groups (PAGs) in Astrophysics**

**NASA Advisory Council Recommendation:**

The Science Committee recommends establishing PAGs for two other themes in Astrophysics (Physics of the Cosmos and Cosmic Origins).

**Major Reasons for the Recommendation:**

The NAC Science subcommittees organize PAGs to provide specialized input to analysis of specific programs within the SMD. These PAGs have proved very useful to the Planetary Science Subcommittee where they were pioneered, and the Astrophysics Subcommittee would like to take advantage of this experience by establishing two PAGs organized along the major Astrophysics themes.

**NASA Response:**

NASA concurs with the NAC recommendation and will establish two new PAGs: one for the Cosmic Origins Program, and one for the Physics of the Cosmos Program. The new PAGs will be modeled after the existing PAG for the Exoplanet Exploration Program. The new PAGs will be established by August 31, 2010, in time for all three Astrophysics Division PAGs to hold meetings shortly after the release of the Astro2010 Decadal Survey Report.