National Aeronautics and
Space Administration

Office of the Administrator
Washington, DC 20546-0001

May 31, 2012

Dr. Steven W. Squyres
Chairman
NASA Advisory Council
Washington, DC 20546

STEVE

Dear ~~Dr. Squyres~~:

Enclosed is NASA's response to a recommendation from the NASA Advisory Council meeting held on March 8-9, 2012, at NASA Headquarters. Please do not hesitate to contact me if the Council would like further background on the response. I appreciate the Council's thoughtful consideration leading to the recommendations and welcome its continued findings, 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,

Charles F. Bolden, Jr.
Administrator

Enclosure:
2012-01-07 (SC-03) Mars Science Laboratory (MSL) Planetary Protection Lessons Learned Report

NASA Advisory Council Recommendation

Mars Science Laboratory (MSL)
Planetary Protection Lessons Learned Report
2012-01-07 (SC-03)

Recommendation:
The Council recommends the preparation of an extensive "lessons-learned" report be completed while the MSL Planetary Protection team remains intact and available for preparation of the report. The report should include:

1. Issues with spacecraft materials and contamination control that may affect measurements made either *in situ* or after return.
2. Key elements of a bioburden accounting software package that can be developed jointly for use in the Mars Sample Return (MSR) campaign.
3. Publication of the Adenosine Triphosphate (ATP) assay as related to the NASA Standard Assay, to facilitate adoption of this assay for bioburden accounting on MSR elements.
4. Research needed to improve the assessment of proposed landing sites in the context of concerns for liberation of fluids from hydrated or frozen ground in the presence of a Radioisotope Power System.

Major Reasons for the Recommendation:
Planetary protection engages numerous competing needs, including science and engineering considerations, general contamination control, materials compatibility with bioburden/organic reduction, etc. Plans for future Mars Sample Return missions will rely on heritage hardware, held to higher bio-cleanliness standard than any mission since Viking, for both planetary protection and science. Viking planetary protection "lessons-learned" report was a valuable resource for transmitting knowledge and practice to subsequent projects. It is important that the transmission of lessons-learned from ongoing missions, especially MSL, to developers of the MSR campaign be accomplished.

Consequences of No Action on the Recommendation:
NASA's withdrawal from the Mars Sample Return campaign as previously structured and formulated for initiation during the 2018 Mars launch opportunity makes the recording of lessons from the MSL project experience all the more important. The now potentially long hiatus in U.S. Mars surface operations for sample return threatens an especially severe loss of accumulated knowledge and experience.

NASA Response:
NASA concurs. NASA will work to capture the planetary protection lessons learned for MSL on a non-interference basis, ensuring that this lessons-learned activity does not interrupt or affect mission critical operations.

Enclosure