

National Aeronautics and Space Administration

Headquarters
Washington, DC 20546-0001



MAY 20 2010

Reply to Attn of: SMD/Planetary Science Division

Dr. Charles F. Kennel
Chair
Space Studies Board
National Research Council
500 Fifth Street, NW
Washington, DC 20001

Dear Dr. Kennel:

In accordance with international treaty obligations, NASA maintains a planetary protection policy to avoid biological contamination of other worlds, as well as to avoid the potential for harmful effects on the Earth due to the return of extraterrestrial materials by spaceflight missions. NASA Policy Directive 8020.7 requires that planetary protection requirements be based on recommendations from both internal and external advisory groups, but most notably the Space Studies Board (SSB). NASA relies on the Board's ability to synthesize input from a wide spectrum of the science community and provide expert advice and recommendations, both as an advisory body and as the U.S. representative to the International Council for Science's Committee on Space Research (COSPAR), which is consultative to the United Nations Committee on the Peaceful Uses of Outer Space. As such, the SSB's recommendations on planetary protection are internationally recognized as authoritative and independent of NASA.

In 2000, the SSB published a report entitled Preventing the Forward Contamination of Europa that provided advice regarding approaches for avoiding contamination by Earth life of subsurface oceans on Europa. Interest in exploring Europa and other icy bodies in the outer solar system has increased within both NASA and the international space exploration community, stimulated by data collected from current missions, as well as the recognition that international collaborative missions have the potential to provide scientific returns significantly greater than is possible with missions by individual space agencies. As NASA prepares for these future collaborative missions, it would be very helpful for the SSB to review the findings of the 2000 Europa report and incorporate conclusions from a series of recent workshops on planetary protection for icy bodies sponsored by COSPAR, in which it was determined that the probabilistic approach for regulating contamination of icy bodies should be retained to accommodate the wide range of objects for which requirements must be set. Ideally, this study would update and expand previous SSB recommendations to cover, as much as is currently feasible, the entire range of icy bodies in the outer solar system (asteroids, satellites, Kuiper-Belt Objects, comets) in light of current scientific understanding and ongoing improvements in mission-enabling capabilities and technologies.

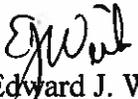
Specifically, the SSB would consider the following subjects and make recommendations, as appropriate, in a report to NASA:

- The possible factors that usefully could be included in a Coleman-Sagan formulation describing the probability that various types of missions might contaminate with Earth life any liquid water, either naturally occurring or induced by human activities, on or within specific target icy bodies or classes of objects;
- The range of values that can be estimated for the above factors based on current knowledge, as well as an assessment of conservative values for other specific factors that might be provided to missions targeting individual bodies or classes of objects; and
- Scientific investigations that could reduce the uncertainty in the above estimates and assessments, as well as technology developments that would facilitate implementation of planetary protection requirements and/or reduce the overall probability of contamination.

In order for NASA to present the results of this study activity to the COSPAR Panel on Planetary Protection at the 2012 Colloquium, and to include the recommendations during development of joint ESA-NASA Europa-Jupiter System Mission concepts, it would be highly desirable to receive a final report by January 2012.

I would like to request that the NRC submit a plan for execution of the study described herein. Once agreement on the scope, cost, and schedule for the proposed study has been achieved, the Contracting Officer will issue a task order for implementation. Dr. Catharine A. Conley, Planetary Protection Officer, will be the technical point of contact for this effort and may be reached at cassie.conley@nasa.gov or (202) 358-3912.

Sincerely,


Edward J. Weiler
Associate Administrator for
Science Mission Directorate