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TO: W/Associate Administrator for Manned Space Flight  
FROM: MM/Director, Space Medicine  
SUBJECT: Lunar Quarantine Activities

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As you are aware, the evidence collected by the scientific personnel in the LRL and subsequent work by the principal investigators in their own laboratories demonstrates quite conclusively that the lunar material returned on Apollo 11 was sterile. The absence of any life forms or their fossil remains, the absence of water or hydrated mineral, and the absence of organic material (that detected was within background levels) add substantial weight to the negative biotest findings.

These findings substantiate the early assumption that the known hostile physical environment on the moon made the presence of life forms highly unlikely. Also, the fact that mixing of lunar surface materials has evidently occurred to a substantial degree permits some generalization of the basis of these findings.

After preliminary discussions of these data, which are not yet available in formal reports, with regulatory agency personnel, I can sense that the new information may lead to changes in quarantine requirements. As a result of this, I would like to propose an alternative approach to quarantine. The past practice has been developed on the assumption of a non-sterile moon, and thus quarantine of all lunar exposed personnel and equipment was necessary. I would propose basing our practice on the assumption of a sterile lunar surface and near surface, and that exposure to such an environment is without risk of infection, to the astronauts or, upon return of personnel and equipment, to the earth's biosphere. The presumption of life forms at depths in the lunar soil would remain until experience indicates otherwise, and our efforts would, therefore, be directed at sample recovery procedures

which would unequivocally contain such material, representative of any new environments samples. Samples so collected would be transported under containment requirements, and be processed in the LRL, at least through a biotest scheme prior to sample release. Such a thrust would place emphasis on hardware capable of sampling aseptically, and containment procedures designed to preserve sample integrity as well. Among the advantages of such an approach would be simplified crew recovery procedures, a surveillance rather than quarantine program for personnel, the relief of pressure upon the LRL facilities, a more rapid clearance of surface experiments such as the solar wind experiment, and the prompt release of equipment.

The transition to such a procedure should fit within a time frame encompassing some number of missions, and the accumulation of evidence sufficient to convince the scientific community of its adequacy. This is a matter of judgment; however, in projecting activities, I would be inclined for Apollo 12 to modify quarantine over personnel, to quarantine returned soil and the Surveyor parts, and to place heavy emphasis on laboratory performance. For Apollo 13, which will explore a highland environment and presumably employ a core sampler, I would place containment emphasis on the core sample as the new environment. Assuming all surface and near surface data from Apollo 12 to be negative by biotest, surface and core sampling from Apollo 13 to be similarly negative, and that these findings will be substantiated by the geochemistry, I believe it will be extremely difficult to rationalize the continuation of quarantine and I would recommend that it be substantially changed or discontinued for missions beyond Apollo 13. Some compromise position with the regulatory agencies might be necessary, but I believe that in substance we can come close to such a projection.

The question of the future of the ICBC and its role must be disposed of. I would recommend that it be kept as a body, that it be maintained beyond its proposed expiration date of March 1970, and that it meet perhaps twice a year to review data emanating from lunar experiments so that it may maintain a position consistent with national interests.

If you agree, I will initiate work towards such rephrasing of the program, and to work with the regulatory agency representatives, the National Academy of Sciences, and the Committee on Space Research of International Council of Scientific Unions to that end.

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The long term role of the LAL is another question to be faced. A capability for containment should be maintained by NASA in view of present and possible future needs, should new lunar data change the picture, or should return space probe capability become a high priority item. A long term mission consistent with such a capability, with the requirements of Space Medicine, and other elements of NASA should be developed. I personally feel that the containment capability and the instrumentation, both of which are somewhat unique and expensive, could be directed towards broader program areas without in any way compromising the NASA basic mission.

Original Signed By:  
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MAJOR GENERAL, USAF, MC

**J. W. Humphreys, Jr.**  
**Major General, USAF, MC**

cc: MA/Dr. Petrone  
MSC/AG, Mr. Johnston

REArnold:smg:10/9/69