

for operational support of the Apollo program. For AAP lunar orbital missions, contingent on the success of the manned lunar landing mission, we will be ready to fly one mission a year beginning in 1969.

*Question 10. Assuming that the mapping and survey system will not be used until after the manned lunar landing, why does the system have to be funded in fiscal year 1968 and flown on the first Apollo Applications flight?*

Answer 10. Both Apollo and Apollo Applications lunar surface missions require surveys and mapping of candidate landing sites. Operational requirements may not be fully satisfied by unmanned Surveyors and Lunar Orbiters. The Apollo Applications requirements may be more rigorous than Apollo because extended duration exploration sites can be at high latitudes or near rugged geological features. A larger area must be studied in detail to support large area surface traverses, and safe landing areas must be found in close juxtaposition to interesting, therefore potentially dangerous, surface features. Funding in fiscal year 1968 is needed to provide for an Earth test mission in mid-calendar year 1968 to prepare for subsequent lunar missions in the 1968-71 time frame.

*Question 11. In Dr. Mueller's prepared statement, the LMSS is referred to as "Apollo-developed." Please explain what you mean by "Apollo-developed," and when was it developed?*

Answer 11. The LMSS has been under definition since 1964 with feasibility studies started in 1963. The system is funded by Apollo since it is being developed to meet Apollo contingency requirements for site certification and landmark location. Apollo Applications requirements are also covered, and the capability to meet general scientific objectives is now being incorporated.

*Question 12. Was the LMSS reviewed by the President's Science Advisory Committee in connection with its report, "The Space Program in the Post-Apollo Period"?*

*Question 12(a). Do you consider it significant that LMSS is not mentioned in the report?*

Answer 12. The LMSS was not formally reviewed by PSAC, but several members of PSAC and their staff have been kept informed of its development.

*Question 13. Will NASA use the lunar mapping and survey system in conjunction with earth resources surveys? If so, have the Departments of Interior and Agriculture been consulted regarding the design, development, and use of LMSS?*

Answer 13. No, there are no present plans to use the LMSS for earth resources survey. The system is designed and configured for lunar missions. The earth test mission in 1968 will be a lunar simulation mission.

*Question 14. Will the L. M. & S.S. provide both photographic and infrared coverage?*

Answer 14. We are planning to use primarily fine grain, panchromatic emulsions imaging in the 4000-7000 Angstrom range, but infrared emulsions, sensitive out to approximately 1 micron can also be used. Color emulsions can also be used with the L.M. & S.S.