COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-165118

APR 27 1976

The Honorable Frank E. Moss
Chairman, Committee on Aeronautical and Space Sciences
United States Senate

SEN03500

Dear Mr. Chairman:

Your February 2, 1976, letter asked us to examine NASA's choice of a location for its proposed lunar curatorial facility. Specifically, your office wanted to know:

AGC00966

1. NASA's basis for locating the facility at Johnson Space Center, Houston, Texas.

2. Alternative locations for the lunar curatorial facility considered by NASA.

3. Opinions of selected lunar sample investigators as to whether Johnson is the proper location for the facility.

4. Whether NASA had considered transferring its lunar curatorial and research activity to an outside research institution, where it would continue to fund and control this work.

5. Whether the proposed facility will permanently satisfy NASA's and the Nation's requirements for handling lunar materials.

Your office also requested us to review the proposed building design, and, if possible, comment on the extent to which it meets or exceeds NASA requirements.

On June 21, 1974, a NASA contractor initiated preliminary engineering studies for a lunar curatorial processing and storage facility. These studies analyzed anticipated natural and manmade hazards and included building configurations, descriptions, and comparative cost estimates for six alternative configurations at Johnson and for one configuration at a hypothetical location free from the natural hazards of the Gulf Coast area. Alternative configurations considered for Johnson

PSAD-76-130

included additions and modifications to existing facilities at a cost estimated from $2.5 million to $6.0 million. The cost of a new facility at a hypothetical location was estimated at $7.1 million. Because of the deadline imposed by your office, we were not able to determine the validity of these estimates.

NASA intended to study other locations--including outside research institutions--for the curatorial facility. However, after the preliminary engineering results were available, alternative locations for the new facility were neither proposed nor studied.

Primarily on the basis of these preliminary studies, on July 26, 1974, the Director of Johnson Space Center decided in favor of keeping the facility at Johnson rather than constructing a new facility elsewhere. If a new facility were constructed at another location general institutional support, such as security forces, engineering design, machine shop services, maintenance, and analytical laboratories, would have to be provided. Also, additional costs would be incurred for relocating about 70 lunar sample curatorial and research personnel presently at Johnson. These costs were not estimated by NASA, but they could be considerable.

As your office suggested, we discussed with lunar scientists at Johnson and with lunar sample principal investigators at several laboratories and universities whether Johnson is the proper location for the facility. These lunar scientists and investigators believe the new facility and associated lunar research activity should be located at Johnson. They said

--lunar materials in the new facility at Johnson would be adequately protected against natural hazards;

--the new facility would satisfy NASA's and the Nation's expected requirements for handling the lunar materials for at least 50 years;

--accessibility of Johnson to the scientific community was not a problem; and

--Johnson's total lunar research capability was stronger than other locations, thus providing a proper research environment for locating the new facility and associated research activity there.

However, we were told that lunar sample curation and research are not in the mainstream of Johnson's activity and that the scientists are concerned whether Center management will continue to provide the dollar support necessary for these activities.

In accordance with your request, we also discussed the proposed curatorial building design with NASA facilities personnel and looked over the proposed building plans. We did not identify any obvious over-design features for the proposed facility on the basis of the requirements and criteria established for a curatorial facility at Johnson. NASA's position is that the proposed facility represents the best and most economical construction to meet its requirements for a safe and secure facility for storing and processing lunar samples over an extended period of time.

NASA said that it recently told your office about five areas where project costs could be reduced by about $400,000, but that it believes these reductions would not be prudent. The major portion of this amount, about $200,000 (less redesign cost), involved the storage vault. Reducing the storage vault from the design equivalent of a Federal Reserve vault to that of a minimum standard bank vault could result in a cost reduction if less security is acceptable. In view of the planned security system and the expected response time (5 minutes or less) following an alarm, this seems to be an acceptable risk. NASA said that protection from tornado damage and hurricanes, with associated flooding and wave action, would be basically unchanged.

Project costs could also be reduced by:

1. Reducing the height of the vault floor from 40 feet to 34 feet above sea level. According to NASA, at this lower level within 10 years wave surge from a maximum hurricane, coupled with the projected land subsidence in the Johnson area, could result in wave surge above the vault floor level.

2. Eliminating the elevator and associated shaft to be used mainly for moving large sample cabinets. Without the elevator, these cabinets would have to be passed in and out of a second floor door or window and raised or lowered to the ground by a forklift.

3. Reducing the hurricane design standard for the building from 155 mph winds to 110 mph winds. NASA believes that the reduction would mean that laboratory space could be contaminated should the building be damaged.

4. Eliminating the visitor viewing area and rest rooms. This viewing area serves tourists and VIPs without disrupting curatorial activities.

Regarding these four areas, we believe that a lower overall functional efficiency for the building and an increased risk from natural hazards could result if these cost reductions are brought about.

We did not obtain formal comments on the matters discussed in this letter. We did, however, discuss the factual content with NASA officials at headquarters and at Johnson Space Center.

Sincerely yours,

Comptroller General
of the United States