

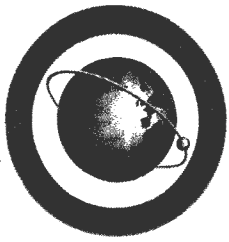
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NATIONAL RECONNAISSANCE OFFICE

14675 Lee Road
Chantilly, VA 20151-1715

5 January 2016

Mr. John Greenewald, Jr.



Dear Mr. Greenewald:

This is in response to your request dated 11 April 2015, received in the National Reconnaissance Office (NRO) on 15 April 2015. Pursuant to the Freedom of Information Act, you are requesting *"all communications between NASA, and the NRO, along with all documents, reports, etc., regarding the Lunar Mapping and Survey System, which had the classified codename UPWARD."*

We have processed your request in accordance with the FOIA, 5 U.S.C. § 552, as amended. As we informed you in our 11 May 2015 letter, a thorough search of our records and databases located nineteen responsive documents consisting of one hundred-eight pages. That letter also included a denial-in-full release determination on three documents, and a determination that the remaining documents required review by another agency prior to our final release decision. That agency has returned their review findings to us, and we have now completed processing of the final sixteen responsive documents consisting of seventy pages. Of these, thirteen documents consisting of fifty-one pages are being released to you in full. Three of these documents consisting of nineteen pages are being released to you in part.

Material withheld is denied pursuant to FOIA exemptions:

(b)(1), as properly classified information under Executive Order 13526, Section 1.4(c). To the extent that it applies to the responsive documents, the NRO has conducted review of classified information over 25 years old pursuant to the automatic declassification provisions of Executive Order 13526, and has determined that the material withheld is exempt from automatic declassification under Section 3.3(b)(1) of the Executive Order. Thus the material remains currently and properly classified and exempt from release; and

(b)(3), which is the basis for withholding information exempt from disclosure by statute. The relevant withholding statute is 10 U.S.C. § 424, which provides (except as required by the President or for information provided to Congress), that no provision of law shall be construed to require the disclosure of the organization or any function of the NRO; the number of persons employed by or assigned or detailed to the NRO; or the name or official title, occupational series, grade, or salary of any such person.

As we indicated in our May, 2015 interim response to you, the NRO's web site contains a significant amount of additional information regarding UPWARD, at: <http://www.NRO.gov/foia/declass/UPWARD.html>. You may find some of these documents to be of interest.

The FOIA authorizes federal agencies to assess fees for record services. Based upon the information provided, you have been placed in the "educational/scientific/media" category of requesters. Your request for a waiver of all fees in this case was granted.

You have the right to appeal this determination by addressing your appeal to the NRO Appeal Authority, 14675 Lee Road, Chantilly, VA 20151-1715 within 60 days of the date of this letter. Should you decide to do so, please explain the basis of your appeal.

If you have any questions, please call the Requester Service Center at (703) 227-9326 and reference case number **F15-0085**.

Sincerely



Patricia B. Cameresi
Chief, Information Review
and Release Group

Enclosure: UPWARD-related documents (70 pgs)

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UPWARD

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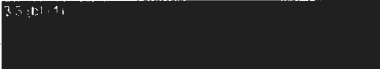
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DECLASSIFIED ON: 14 JUNE 2013

**ALTERNATIVE OPERATIONAL/INFORMATION PLANS FOR AN
EARTH-ORBITING TEST OF THE UPWARD CAMERA**

PROBLEM:

At its Fourth Meeting, on 9 February 1967, the Manned Space Flight Policy Committee directed the Survey Applications Coordinating Committee to "... undertake immediately to devise detailed

3.5 (b) (1)



← for the procedural handling of information

related to and products resulting from the earth orbital test flights of the LM&SS (UPWARD). The SACC will report its findings and recommendations to the MSFPC at the earliest possible date. "

(b)(1) 1.4(c), (b)(3) 10 USC 424
(FOIA exemption citations added to
previously declassified document on 31
Dec 2015.)

BACKGROUND:

The 28 August 1963, "DOD/CIA-NASA Agreement on NASA Reconnaissance Programs, " the 24 March 1964 "Security Annex, " and the 20 April 1964 "DOD/NASA Agreement on the NASA Manned Lunar Mapping and Survey Program" established the basic policies and security requirements for Project UPWARD. In these documents, the DOD agreed to give NASA all possible assistance in making site selections for the manned lunar landings and, specifically, to furnish the finest available reconnaissance camera from the National Reconnaissance Program for that purpose. NASA made it clear that UPWARD would be an essential step in selecting Apollo landing

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sites to supplement the data to be obtained by the on-going Lunar Orbiter and Surveyor programs. NASA's secondary objective of mapping, surveying, and scientifically exploring the moon using the UPWARD camera was to be "fallout" in meeting the primary objective of site selection.

CURRENT STATUS:

NASA's plans have recently undergone a significant change. The UPWARD program will probably not be required for the initial Apollo lunar landing site selection and the major focus of the program is now toward the selection of landing sites for follow-on surface exploration, and for general lunar orbital exploration. The proposed earth-orbiting tests of the UPWARD camera are to certify the camera for these follow-on applications.

The action item passed to the SACC by the MSFPC implies that a "full-up" earth-orbiting test is to be made of UPWARD. The value of useful photography -- in fact of any photography -- on the earth orbiting test should be assessed against the risks to the National Reconnaissance Program and the possible adverse international reaction to NASA and the United States.

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POSSIBLE COURSES OF ACTION:

The following possible courses of action are presented for consideration in the event that it is decided that an earth-orbiting test is essential.

Alternative 1. A NASA Camera Carrying Leader Only.

In an open press conference, held in the near future, NASA reaffirms the fact that the camera is being developed by the DOD but will be flown and operated by NASA. From that point on NASA maintains a "don't volunteer information" position, carefully avoiding making obligations to its own people, the scientific community, and other governmental agencies as regards the camera's product. If NASA feels a statement is absolutely necessary, it may state, at the pre-launch press conference, that the camera will carry leader (non-emulsified film) only. If pressed to defend this decision, NASA may point out that (1) photographs are not essential to this test; (2) the camera is for lunar surveying only; and (3) NASA wishes to avoid any possible misunderstanding of its camera test.

Advantages:

1. Has all the security advantages of a true story; easy to handle from a security point-of-view.
2. The camera receives a complete functional test; however, photographic performance is not demonstrated.

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3. No troublesome photographic images can be produced.
4. Eliminates, in advance, arguments over release and exploitation of the "take".

Disadvantages:

1. Possibly not credible to the American public which may doubt that pictures were not taken.
2. Possible not credible to foreign countries which may believe that NASA is withholding photography of them. This belief could impair NASA's present excellent rapport with friendly foreign nations.
3. Shows an apprehensive attitude toward satellite observation (contrary to policy stated in NSC Action Memorandum 2454).
4. NASA open to academic/scientific criticism for illogically missing an opportunity to do an earth survey or to "calibrate" the product for later comparison with photographs of the moon.
5. Does not provide a complete dress rehearsal for a Lunar Mission.

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Alternative 2. A NASA Camera Limited to Taking Pictures of
Calibration Sites in the U.S. With No Release of Pictures.

In an open press conference, held in the near future, NASA reaffirms the fact that the camera is being developed by the DOD but will be flown and operated by NASA. From that point on, NASA maintains a "don't volunteer information" position, carefully avoiding making obligations to its own people, the scientific community, and other governmental agencies as regards the photographic products. If NASA feels a statement is absolutely necessary, it may state, at the pre-launch press conference, that the camera is programmed to photograph selected calibration sites in the United States. The pictures are for engineering purposes only and will not be released (by agreement they will be in the T-KH system). If required to defend this decision, NASA may point out that the purpose of the flight is to test the camera for lunar applications, not to make an earth resources survey.

Advantages:

1. This has all the security advantages of a true story.
2. The camera receives a complete functional and performance test and photography is available for calibration of later photographs of the moon.
3. Less illogical to the public mind than Alternative 1;
some pictures are taken.

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Disadvantages:

1. More difficult to handle, from a security point-of-view, than Alternative No. 1.
2. Possibly not credible to foreign countries which may believe that NASA is withholding photography of them. This belief could impair NASA's excellent rapport with friendly foreign nations.
3. Knowledge of the existence of a photographic product may generate so much public interest and pressure that political considerations will demand its release.
4. "Hiding" a technical product could conflict with the public image of NASA and be difficult to defend.
5. NASA would still be open to academic/scientific criticism for illogically missing an opportunity to do earth survey work.

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Alternative 3. A NASA Camera Limited to Taking Pictures of
Calibration Sites in the U.S. With Degraded Pictures Released
to the Public.

Degraded survey camera pictures consistent with the quality
of NASA Lunar Orbiter photography of the moon would be released.

Advantages:

1. Preserves NASA's image of openness
2. Provides a planned step toward increasing international acceptance of orbital reconnaissance and sets the stage for release of high-quality lunar photography.
3. Provides a complete functional and performance test.
4. The data obtained could be of use in planning the NASA Earth Resource Survey Program.
5. Results are consistent with the state-of-the-art as shown by contemporary Lunar Orbiter photography of the moon.

Disadvantages:

1. Has all the disadvantages of a false story.
2. Could raise the question of the authenticity of the photographs in the minds of independent experts.
3. Requires an amendment of the agreement that all earth photography will be handled in the T-KH system.

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Alternative 4. A DOD Camera (1) Carrying Leader Only or (2)

Limited to Taking Pictures of Calibration Sites in the U. S.

In an open press conference, held in the near future, NASA reaffirms the fact that a camera is being built for it by the DOD.

The camera will be turned over to NASA for lunar mapping and survey work as soon as it has been qualified satisfactorily in earth orbital test. The DOD will conduct these tests on an up-coming Apollo Applications Program flight. With this statement NASA passes the main responsibility for public relations and information release on this first flight to the DOD. The DOD, when queried for details, states that its activity in this regard is a typical example of NASA -DOD cooperative enterprise and it has been pleased to make its finest technology available to NASA. When pressed for more information regarding the camera, the DOD will state that details of configuration and performance reflect advanced states of the art and are classified. The DOD will not respond to queries regarding photography. In response to query, NASA may give public assurance that lunar photographs taken under NASA aegis will be made available to the public.

Advantages:

1. Has all the security advantages of a true story; easy to handle from a security point-of-view.

2. The idea that the DOD must flight qualify the camera

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before turning it over to NASA is credible.

3. The camera receives a complete functional test in Case (1) and a complete performance test in Case (2).
4. Shifts public focus to the DOD, where "no comment" is an acceptable reply to public inquiry. Moves the entire security problem into an experienced, controlled security environment.
5. Eliminates, in advance, arguments over release and exploitation of the "take".
6. Preserves NASA's image of openness in its own experiments and activities.

Disadvantages:

1. Could raise questions connecting Apollo Applications Program with certain alleged DOD activities such as SAMOS and "spy-in-the-sky."
2. Could provoke some international speculation as to whether the DOD is hiding behind a NASA cover for reconnaissance work.
3. Foreign country concern over "military" activities of NASA could jeopardize present agreements over tracking sites and cooperation in future programs.
4. Could create for NASA intra-NASA, academic, and other governmental agencies pressures and criticisms.

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FUNCTIONS: NASA

UNCONTROLLED

15 April 1965

MEMORANDUM FOR THE RECORD**SUBJECT: Space Budget Coordination Meeting, April 12, 1965**

On the above date Dr. Shapley, Dr. McMillan, General Evans, and I met with Mr. Garbarini and Dr. Seamans in Dr. Seamans' office to review data which NASA had been pulling together as a comparison of the objectives of the MOL program with those of NASA's extended APOLLO earth-orbit flights. In general, NASA's data were skillfully designed to reflect a similarity between the objectives of the Department of Defense experiments and those of NASA.

Among the areas which NASA intends to investigate by near-earth orbital flights with APOLLO are:

- (a) Remote sensing of the earth's atmosphere.
- (b) Remote sensing of the earth's surface.

(b)(1)1.4c
[REDACTED]

- (c) Electromagnetic propagation and transmission.

(b)(1)1.4c
[REDACTED]

It is clear to me that these experiments involve in whole or in part image-forming sensors used for accomplishing the gathering of intelligence information from space. A subsequent conversation with Dr. McMillan confirmed my reaction. As a result, I have examined in more detail the description of experiments received from NASA on March 15, 1964 as its stated requirements for an extended APOLLO earth-orbit space program. I have attached several significant extracts of their proposed plan for this program.

Continued planning activity by NASA (b)(1)1.4c [REDACTED]

[REDACTED] will subject the federal government to international and national criticism, tarnish the image of a "peaceful" NASA, jeopardize the security

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While no issue was made of this matter at the time of the briefing, all concerned should be aware that this fundamental problem may have to be resolved in the course of the next two months definition of the MOL program.

ALBERT C. HALL
Deputy Director (Space)

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Copies to:
Dr. Brown
Dr. Fubini
Dr. McMillan

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1. Experiment - "Multi-Spectral Target Characteristics Determination," the use of cameras, film, telescopes and other sensors to accomplish identification of the earth's surface and subsurface features by simultaneous mapping with sensors at different portions of the spectrum. Ground resolution from 15 feet to 1 mile is needed.
2. Experiment - "Synoptic Earth Mapping" with VHF radar and black-white stereo photography map all the land areas of the earth. Ground resolution of 20 feet is required to provide topographic maps with 100-foot contour interval.
3. Experiment - "Multi-Frequency Radar Imagery" high resolution Doppler information is recorded on photographic film which must be returned to earth for the generation of high resolution radar imagery. To accomplish the multiple purpose of the high resolution radar groundmapping experiment, a sequential set of equipments of increased sophistication is required. These will include a radar altimeter, 35 KMC and 8 KMC sidelooking radar systems and ultimately, a side looking radar 0.5 KMC to provide information on soil conditions to a depth of one foot.
4. Experiment - "Measurement of Radio Frequency Radiation," with parabolic antennas for the 1 KMC to 100 KMC band and Yagi, log periodic, or array type antennas for the 100 MC to 1 KMC band plus tuneable receivers and amplifiers, make sensitive measurements of radio frequency radiation of man-made earth origin. Measurement of earth signals with good geographic resolution is needed for the whole area of the earth.

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DEPARTMENT OF THE AIR FORCE
WASHINGTON

OFFICE OF THE ASSISTANT SECRETARY

March 29, 1966

MEMORANDUM FOR DR. FLAX

SUBJECT: Redirection of "UPWARD"

BACKGROUND

The attached letter from NASA (Tab A) confirms decisions made with Lt Colonel Hansen at NASA on March 25 and discussed with you yesterday at SAFSP.

Colonel Hansen has already undertaken the actions required with Eastman Kodak, LMSC and G.E.

I have prepared a letter to SAFSP (Tab B) for your signature to confirm the actions now underway.



Frank S. Buzard
FRANK S. BUZARD
Colonel, USAF

~~CONFIDENTIAL~~

31 December 2015

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON 25, D.C.

IN REPLY REFER TO: MLA

MAR 29 1966

Dr. Alexander H. Flax
Assistant Secretary for Research & Development
United States Air Force
The Pentagon
Washington, D.C.

Dear Dr. Flax:

This letter is to confirm decisions made on March 25, 1966 regarding the redirection of the M&SS development. The decisions were made after meeting with you in the morning and after meeting again in the afternoon with Lt. Col. John R. Hansen, representing the Air Force.

Regarding the survey camera — The Eastman Kodak survey camera will not be flown in the Command and Service Module (CSM) Sector 1, but rather in an Orbiting Control Vehicle (OCV) flown in place of a LEM. You are requested to terminate development of the Eastman Kodak survey camera (-5) pursuant to the present contract and work statement, and redirect this effort to provide a standard GAMBIT camera, with absolute minimum modifications to accomplish the lunar mission. Required modifications would include IR filters and possibly an additional shutter slit, but do not include multiple speed drive (MSD) modifications. We plan to fly the OCV in lunar orbit at 30nm altitude to accommodate the present MSD.

Orbital Control Vehicle — You are requested to proceed with a 30-45 day "quick-look" study of the OCV approach using both Lockheed and General Electric to establish the feasibility of and define the details of the OCV route.

Regarding the mapping camera — We will plan to fly the present S/I in the OCV. The Fairchild mapping camera (-6) may be flown elsewhere on the Apollo

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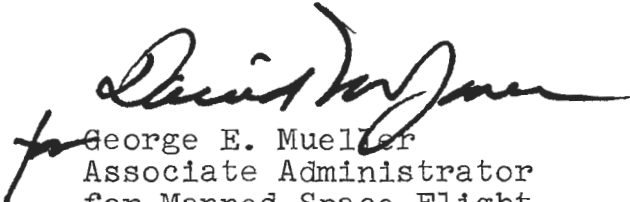
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Dr. Alexander H. Flax
Page 2

spacecraft. We will inform you later this week on our decision regarding whether we will proceed with this development; and, if so, under what guidelines.

Sincerely,


George E. Mueller
Associate Administrator
for Manned Space Flight

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DEPARTMENT OF THE AIR FORCE
WASHINGTON

OFFICE OF THE SECRETARY

Col Euzard
rewritten-Dr. Flax

March 29, 1966

MEMORANDUM FOR GENERAL MARTIN, SAFSP

SUBJECT: UPWARD Redirection

The attached memorandum from NASA is forwarded for action as discussed with you yesterday.

In light of this redirection, you should review the Security plan established for the UPWARD program and recommend to the NRO any changes that are necessary to protect the security of both the GAMBIT program and the state of the art involved.

Alexander H. Flax

Alexander H. Flax
Director
National Reconnaissance Office

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cy 5 - RF-1
cy 6 - RF-2

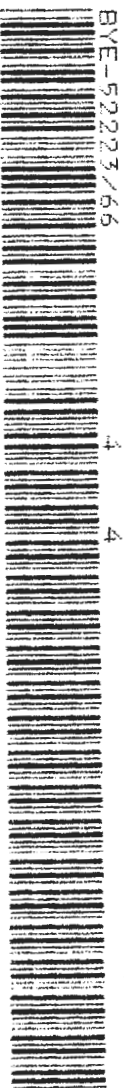
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UPWARD/GAMBIT (b)(1)1.4c

FOR DR FLAX FROM GENERAL MARTIN.
REFERENCE DNRO MEMO, SUBJECT: UPWARD REDIRECTION, 29 MAY 66,
BYE-52223-66.

1. AS DIRECTED BY YOU IN REFERENCE, WE HAVE REVIEWED OUR SECURITY SITUATION ON THE UPWARD PROGRAM AS THE RESULT OF THE REDIRECTION OF THAT EFFORT AND THE SELECTION OF LMSC AS THE PAYLOAD MODULE CONTRACTOR.

2. IT IS MY CONCLUSION FROM THIS REVIEW THAT THE IMPACT OF THESE CHANGES TO THE PROGRAM IS FAVORABLE IN THAT THE SECURITY SITUATION FOR BOTH GAMBIT AND UPWARD HAS BEEN GREATLY ENHANCED. IN THE NEW ARRANGEMENT, WE ARE DEALING WITH CONTRACTORS WHO ARE SKILLED AND EXPERIENCED IN COVERT WORK. WE CAN CONDUCT THE INTEGRATION OF THE CAMERA INTO THE PAYLOAD MODULE IN A TIGHTLY CONTROLLED ENVIRONMENT AND THIS BUTTONED-UP UNIT IS THEN DELIVERED TO KSC (NASA). THIS SITUATION IS MUCH BETTER FROM A SECURITY VIEWPOINT WHEN COMPARED WITH THE ORIGINAL CASE OF DELIVERING THE EXPOSED CAMERA FOR INTEGRATION INTO THE APOLLO SERVICE MODULE BY A CONTRACTOR, NAA, WITH WHICH WE DID NOT EVEN HAVE A CONTRACT. FURTHER, FROM A MISSION PLANNING AND SOFTWARE VIEWPOINT, IT IS ENVISIONED THAT LMSC WILL BE ABLE TO CARRY OUT A GREAT DEAL OF THE MORE SENSITIVE ELEMENTS OF THIS WORK WHICH WILL DECREASE THE AMOUNT OF EXPOSURE OF THESE DATA THAN THE PREVIOUS SCHEME REQUIRED.

3. I HAVE REVIEWED THAT AUGUST 1963 DOD/NASA AGREEMENT ON UPWARD AND I FEEL THAT THIS AGREEMENT IS STILL VALID AND I PROPOSE NO CHANGE AT THIS TIME. IN ORDER TO ACCOUNT FOR THOSE ELEMENTS IN THE AGREEMENT WHICH ARE TO BE TREATED AS UNCLASSIFIED, I FEEL THAT ONE SIGNIFICANT CHANGE IN MY EFFORT IS REQUIRED. THIS CHANGE IS TO WRITE A WHITE CONTRACT WITH LMSC FOR THE OVERT ELEMENTS OF THE LUNAR MAPPING AND SURVEY SYSTEM (LMSS) AND A COMPLEMENTARY BLACK CONTRACT WITH LMSC FOR THE PURELY UPWARD EFFORT. AS PART OF THIS CONCEPT, LMSC WILL ASSERT THAT EK IS THEIR SUBCONTRACTOR FOR THE LMSS SENSOR. LMSC WILL ISSUE A SUBCONTRACT NUMBER TO EK FOR EK'S USE FOR PRIORITIES, TRAVEL, ETR FACILITIES AND THE LIKE. WE WILL CONTINUE TO MAINTAIN EK ON A BLACK CONTRACT AS AN ASSOCIATE.

4. THE ABOVE ARRANGEMENT WILL PROVIDE A DEFENSE IN DEPTH, FROM A SECURITY VIEWPOINT, AND WILL ESTABLISH A CREDIBLE SET OF RELATIONSHIPS BETWEEN THE DOD(AF)/NASA/CONTRACTORS AND WILL PROVIDE A LOGICAL EXPLANATION FOR THE OVERT RELATIONSHIPS WHICH, BY AGREEMENT, ARE UNCLASSIFIED.

5. I WILL WORK OUT ALTERATIONS TO OUR NASA FUNDING ARRANGEMENTS IN ORDER TO SURFACE THE NASA MONEY REQUIRED TO FUND THE WHITE LMSC CONTRACT.

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UPWARD

FOR GENERAL MARTIN FROM DR. FLAX.

REFERENCE (b)(1)1.4c, (b)(3) 10 USC § 424 1367

THE DNRO APPROVES THE ARRANGEMENTS PROPOSED IN REFERENCED MESSAGE. YOU ARE AUTHORIZED TO PROCEED WITH THE NECESSARY ALTERNATIONS.

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Access to this document will be restricted to those persons cleared for the specific projects;

.....UPWARD.....
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WARNING

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18 December 2015

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NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

October 31, 1966

Dear George,

My staff has briefed me on the issues involved in the selection of a contractor for the "rack" (the payload module - interstage adapter) in the Apollo Lunar Mapping and Survey System. I understand NASA prefers the Marshall Space Flight Center to be the "rack" supplier regardless of the reasonable expectation of lesser interface and security problems if the Air Force were to procure this item from Lockheed Missile and Space Company.

I am willing to accept the increase in security and management burdens resulting from this new interface with another NASA center only if you can assure me that there are overriding NASA management considerations vital to the success of the program and, if you will accept the risk of increased costs and schedule slippage of the DoD hardware effort which may result. I understand your people have negotiated the following with my staff:

a. DoD will consider MSFC as a contractor to the Manned Spacecraft Center Experiments Office (MSC Expo), with all DoD contacts involving MSFC controlled through and by the MSC Expo.

b. DoD will not be required to participate in any NASA inter-center technical, administrative, financial or management negotiations on this program.

c. Security provisions of the August 1963 DoD agreement will not be abrogated.

I would appreciate it if you would advise me, in light of the above considerations, of your judgement as to the best way to proceed.

Sincerely,


Alexander H. Flax

Dr. George Mueller
Associate Administrator
National Aeronautics & Space Agency

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

WASHINGTON 25, D.C.

IN REPLY REFER TO: MIA

MAY 18 1966

Dr. Alexander Flax
 Assistant Secretary of the Air Force
 Research and Development
 The Pentagon
 Washington, D.C.

Dear Al:

Since our recent decision to redirect the Apollo Mapping & Survey System toward a configuration involving the Eastman-Kodak high resolution camera and the Itek stellar-index (S-I) camera in a separate "payload module", we have reviewed carefully our requirements for continuing the development of the Fairchild mapping camera. It appears that the S-I camera can meet the early requirements for locating Apollo lunar landing sites and navigation landmarks. Thus, requirements for the Fairchild mapping camera have been examined in terms of the less time-dependent, scientific needs for more accurate lunar maps and for multispectral, synoptic investigations from earth orbit. While the Fairchild camera, as now being developed for us, will not have all the characteristics desired for scientific application, it would meet most of the basic requirements. It appears that, with some redirection of the Fairchild effort, the investment to date could lead to a metric camera system which could satisfy significant requirements of both NASA and DOD.

Two major factors appear to mitigate against the use of the present Fairchild concept for scientific application: (1) the security classification which current DOD policy requires to govern both the photography obtained and the associated camera calibration data, and (2) the focal length and format of the terrain photography, which do not appear directly applicable to "standard" photogrammetric data reduction equipment

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Dr. Alexander H. Flax
Page 2

and techniques. If these two factors could be overcome or suitably modified by redirecting the current Fairchild effort within the level of NASA funding already committed, then it would seem desirable to proceed with the Fairchild effort. If not, then continued expenditure of NASA funds on the Fairchild contract is not justified, and the effort should be terminated.

I would appreciate your advice on the degree to which the following redirection of the current Fairchild effort can be assured:

- a. Current contract commitment of NASA funds (\$4.06 million) to be unchanged.
- b. Initial flight readiness deferred from early 1968 to mid-1969.
- c. Camera products (photography and auxiliary data) and basic system characteristics required for data reduction and analysis to be unclassified. Earth and Lunar missions may be considered separately.
- d. Data reduction of the camera products to be compatible with "standard" ground data handling systems ("standard" to be defined jointly by NASA and DOD representatives).
- e. Suitable waivers to Apollo flight hardware qualification requirements (NPC 500-1) to be considered as necessary to reduce costs, where crew safety is not compromised and adequate system reliability is assured.
- f. The maximum number of flight units to be delivered within the conditions of a. and b., above.

I would appreciate hearing from you as soon as possible on this matter so that we can reach an early decision on the most effective use of the funds involved. If

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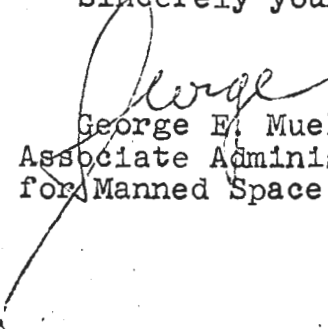
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Dr. Alexander H. Flax
Page 3

the course of action I have proposed is not possible, I would like to terminate the Fairchild effort before the end of the fiscal year. Messrs. Myron W. Krueger and Leonard Jaffe of NASA Headquarters are our representatives to work with your representatives in seeking a solution to this problem.

Sincerely yours,


George E. Mueller
Associate Administrator
for Manned Space Flight

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546

OFFICE OF THE ADMINISTRATOR

2 JAN 1968



Honorable Alexander H. Flax
Assistant Secretary of the Air Force
(Research and Development)
Department of the Air Force
The Pentagon
Washington, D. C. 20330

Dear Al:

Thank you for your memorandum of 1 December 1967. The action to decontrol the ITEK (-9) mapping camera is appreciated. I am confident that NASA can utilize this hardware within the constraints you outlined.

The debriefing of those persons holding UPWARD clearances is proceeding with fine assistance from Mr. Mazza and Maj. Cohen of the NRO staff. By mid-January we hope to have completed the debriefing of all persons holding UPWARD (also GAMBIT) at Kennedy Space Center and Marshall Space Flight Center.

There will be about 16 people at Manned Spacecraft Center and a number in Headquarters who will retain their UPWARD clearances. This is necessary until the LMSS program termination is completed. At that time a determination will be made as to which key people will be required to remain in the BYEMAN system and the remainder will be debriefed.

Sincerely,

R. C.

Robert C. Seamans, Jr.
Deputy Administrator

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2 JAN 1968

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53



SECURITY CLASSIFICATION			
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TYPE	BOOK	MULTI	SINGLE
PRECEDENCE	ACTION		
PRIORITY	INFO		

DTG

NO. 0817

FROM: OSAF

TO: AFSC ANDREWS AFB

SSD LOS ANGELES STATION

AFETR PATRICK AFB

SPECIAL INSTRUCTIONS

SAFSS

SAFSL

OASD/PA

01
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~~CONFIDENTIAL~~

79003

~~CONFIDENTIAL~~ SAF-OI _____ JANUARY 1966 AFSC

(SCE).. SSD(SSE). AFETR(ETN). OASD/PA(DIR P&P).

SUBJECT: INFORMATION POLICY REGARDING LM&SS SYSTEM DEVELOPMENT.

I. BACKGROUND FACTS:

A. EARLY IN THE DEVELOPMENT OF THE APOLLO MANNED LUNAR LANDING PROGRAM, IT WAS DECIDED THAT IN ADDITION TO MOON LANDING SITE CERTIFICATION EFFORTS SUCH AS SURVEYOR AND LUNAR ORBITER, IT WOULD BE PRUDENT TO DEVELOP AN ADDITIONAL BACK-UP CAPABILITY. THIS CAPABILITY WAS TO BE DESIGNED SO THAT, IF NOT NEEDED FOR SITE CERTIFICATION, IT COULD BE EMPLOYED AS A SCIENTIFIC SURVEY AND MAPPING TOOL FOR LUNAR EXPLORATION.

DATE	TIME
27	5:00
MONTH	YEAR
JAN	1967
PAGE NO.	NO. OF PAGES
17	7

TYPED NAME AND TITLE	PHONE
Major Robert Herman	50961
SAF-SL MOL PROJECT OFFICER	
OFFICE OF INFORMATION	
SECRETARY AIR FORCE	

SIGNATURE
TYPED (or stamped) NAME AND TITLE

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FROM:

OSAF

B. NASA REQUESTED ASSISTANCE FROM DOD IN DESIGNING AND PROCURING AN AUTOMATED CAMERA SYSTEM FOR THE LM&SS MISSION BECAUSE OF DOD'S EXTENSIVE EXPERIENCE IN THE DEVELOPMENT OF AERIAL PHOTOGRAPHIC SYSTEMS. FOLLOWING THE PATTERN OF OTHER JOINT EFFORTS, NASA AND DOD CONCLUDED AN AGREEMENT FOR THE ACQUISITION OF THE LM&SS CAMERA SYSTEM.

C. NASA, DOD AND VARIOUS CONTRACTORS COMPLETED STUDIES TO DETERMINE SUCH THINGS AS PERFORMANCE CHARACTERISTICS, WEIGHT LIMITATIONS AND OTHER DETAILS FOR THE LM&SS SYSTEM. THE SYSTEM IS NOW BEING BUILT BY EASTMAN KODAK COMPANY AND THE LOCKHEED MISSILES AND SPACE COMPANY UNDER THE SUPERVISION OF THE SPACE SYSTEMS DIVISION OF THE AIR FORCE SYSTEMS COMMAND. PRESENT PLANS CALL FOR THE AIR FORCE TO DELIBER THE SYSTEM TO NASA IN MID-1968.

2. INFORMATION POLICY AND PROCEDURES:

A. PUBLIC INFORMATION ACTIVITIES RELATING TO THE DEVELOPMENT, TESTING AND USE OF THE LM&SS SYSTEM DEVELOPED FOR NASA BY DOD WILL BE PLANNED AND CARRIED OUT BASICALLY IN ACCORDANCE WITH NASA INFORMATION POLICY AND PROCEDURES. HOWEVER, NATIONAL SECURITY CONSIDERA-

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5 October 2015

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CSAF

TIONS REQUIRE THAT THE GUIDANCE AND PROCEDURES OUTLINED BELOW BE FOLLOWED BY ALL CONCERNED.

B. RESPONSES TO QUERIES SHOULD BE BASED ON THE INFORMATION CONTAINED IN PARA ONE ABOVE OR PARA THREE BELOW.

C. ANY STATEMENTS RELATING TO THE LM&SS SYSTEM WILL REFLECT CLEARLY THE LIMITED ROLE OF DOD IN THE PROJECT AS STATED IN THE NASA/DOD AGREEMENT OF APRIL 20, 1964: "THE AIR FORCE AS RESPONSIBLE DOD AGENCY WILL PROVIDE TECHNICAL ASSISTANCE TO NASA BY DEVELOPING AND PROVIDING MANNED LUNAR MAPPING AND SURVEY FLIGHT EQUIPMENT TO MEET NASA'S REQUIREMENTS." HOWEVER, NO ATTEMPT SHOULD BE MADE TO WITHHOLD UNCLASSIFIED INFORMATION ON THE ASSISTANCE PROVIDED BY THE AF IN DEVELOPING THE SYSTEM. SUCH REFERENCES SHOULD BE TREATED AS ANOTHER EXAMPLE OF DOD ASSISTANCE TO NASA IN NATIONAL SPACE EXPLORATION PROGRAMS.

D. RESPONSES TO QUERIES WILL REFLECT THE FACT THAT THE EQUIPMENT IS NASA'S AND THAT IT WAS DEVELOPED STRICTLY FOR NASA'S USE AND OPERATION IN MANNED LUNAR LANDING AND/OR LUNAR EXPLORATION PROGRAMS. ABSOLUTELY NO SPECULATION WILL BE MADE REGARDING POTENTIAL DOD USE OF SUCH EQUIPMENT.

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FROM:

OSAF

E. DOD OFFICIALS WILL NOT MAKE PUBLIC STATEMENTS REGARDING PLANNED USE OF THE LM&SS EQUIPMENT BY NASA, EXCEPT IN THE CONTEXT OF THE GENERAL REQUIREMENTS NASA PROVIDED FOR THE DESIGN AND DEVELOPMENT OF THE EQUIPMENT. QUERIES REGARDING FLIGHT TESTING, MISSION PLANNING, RELEASE OF PHOTOGRAPHY, ETC. WILL BE REFERRED TO NASA. QUERIES RECEIVED BY AF OFFICIALS ON DOD INVOLVEMENT WHICH CANNOT BE ANSWERED WITHIN THE CONTEXT OF THE MATERIAL IN PARA ONE ABOVE OR PARA THREE BELOW, WILL BE REFERRED TO DOD.

F. AF OFFICIALS OR THEIR CONTRACTORS WILL NOT VOLUNTEER STATEMENTS, BUT WILL RESPOND TO QUERY ONLY.

G. LM&SS CONTRACTORS WILL SUBMIT ALL PROPOSED PUBLIC INFORMATION MATERIALS THROUGH THE AIR FORCE (SSD) TO DOD FOR SECURITY AND POLICY REVIEW PRIOR TO RELEASE. DOD WILL FURTHER COORDINATE SUCH MATERIALS WITH NASA.

H. LM&SS CAMERA EQUIPMENT WILL NOT BE PUBLICLY DISPLAYED, AND PICTURES OR DRAWINGS OF THE EQUIPMENT WILL NOT BE RELEASED.

I. INFORMATION REGARDING LM&SS CAMERA SYSTEM DESIGN, SPECIFICATIONS AND CAPABILITIES WILL NOT BE RELEASED.

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FROM:

OSAF

3. ANSWERS TO POTENTIAL QUERIES:

A. QUESTION: WHY WAS THE APOLLO M&S DEVELOPMENT CONDUCTED BY THE DOD?

ANSWER: NASA RELIED HEAVILY ON DOD CONSULTATION FOR BOTH THE LUNAR ORBITER AND THE APOLLO M&S SYSTEMS. THE MATTER OF AERIAL PHOTOGRAPHIC SYSTEMS HAS, OF COURSE, BEEN A TECHNOLOGY PURSUED BY THE DOD SINCE THE EARLY DAYS OF AVIATION, AND THEY HAVE GREATLY ADVANCED THE STATE-OF-ART WITH RESPECT TO AERIAL PHOTOGRAPHIC SYSTEMS. UNDER APOLLO M&S, IT WAS LARGELY A DECISION INVOLVING HOW BEST, IN TERMS OF MANAGEMENT, TO APPLY THE LONG CONTINUITY OF THE DOD PEOPLE IN THIS FIELD, TO THIS VERY EXACTING MISSION.

B. QUESTION: IS THIS THE SAMOS CAMERA?

ANSWER: THIS CAMERA WAS DEVELOPED SPECIFICALLY FOR THE APOLLO LUNAR MISSION. (DOD POLICY IS NOT TO COMMENT ON THIS FORMER PROJECT NAME OR ANY SPECULATION ABOUT IT.)

C. QUESTION: DO YOU PLAN TO TEST THE EQUIPMENT IN EARTH ORBIT?

ANSWER: (REFER TO NASA.)

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FROM:

OSAF

D. QUESTION: WHO IN THE BOD IS DOING THIS WORK?

ANSWER: THE USAF UNDER THE AF SYSTEMS COMMAND AT THE SPACE SYSTEMS DIVISION, WHICH HAS PROVIDED SUPPORT TO NASA ON OTHER SPACE PROJECTS.

E. QUESTION: WHO ARE THE CONTRACTORS WORKING WITH THE AIR FORCE ON THE PROJECT?

ANSWER: LOCKHEED MISSILE AND SPACE COMPANY IS THE PRIME CONTRACTOR, BUILDING THE PAYLOAD MODULE AND INTEGRATING THE CAMERA INTO THE PAYLOAD MODULE. EASTMAN KODAK IS BUILDING THE CAMERA SYSTEM.

F. QUESTION: CAN WE SEE THE EQUIPMENT? IF NOT, WHY?

ANSWER: NO, IT INVOLVES CLASSIFIED TECHNOLOGY WHICH HAS POTENTIAL MILITARY APPLICATION.

G. QUESTION: SINCE THE EQUIPMENTS ARE CLASSIFIED, WILL THE RESULTANT PHOTOGRAPHY BE OKAY FOR PUBLICATION?

ANSWER: (REFER TO NASA)

H. QUESTION: DIDN'T LMSC ALSO WORK ON THE SAMOS PROGRAM?

ANSWER: (NO COMMENT.)

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MESSAGEFORM - CONTINUATION

FROM:

OSAF

I. QUESTION: IF THE LUNAR MAPPING AND SURVEY MISSION IS SUCCESSFUL, IS THE SYSTEM ADAPTABLE TO AN EARTH MAPPING OR RECONNAISSANCE MISSION?

ANSWER: THIS SYSTEM HAS BEEN DESIGNED TO MEET SPECIFIC REQUIREMENTS OF THE APOLLO PROGRAM. SIMILAR REQUIREMENTS HAVE NOT BEEN ESTABLISHED FOR EARTH APPLICATION: SCP-4

END

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15 October 2009



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D.C. 20546



OFFICE OF THE ADMINISTRATOR

DEC 22 1966

Honorable Alexander H. Flax
Assistant Secretary of the Air Force
(Research and Development)
The Pentagon
Washington, D. C. 20330

Dear Al:

NASA is in urgent need of continued technical assistance in its Multi-spectral Photographic Experiment, one of the major elements of our Earth Resources Survey Program, and I am making this request to you in accordance with the final paragraph of the "GUIDELINES FOR DOD PARTICIPATION IN NASA EARTH SENSING PROGRAMS," a copy of which you forwarded to me as an attachment to your TOP SECRET (BYEMAN) letter to me of September 30, 1966.

As you know, NASA attaches great importance to this experiment. A number of eminent scientists are participating in it as experimenters, and the experiment is endorsed by the Departments of Agriculture, Commerce, and Interior, as well as other prospective user agencies both in and out of government. For the last fifteen months, Mr. Donald Orr, a civilian employee of GIMRADA, has been acting as the technical coordinator representing the experimenters. Mr. Orr was originally recommended for this position by the Corps of Engineers, and since his initial employment with the Corps about fifteen months ago, has been occupying a position funded by NASA. It was our intention to designate him as Principal Investigator, but we were recently advised by a member of your staff that under the provisions of your TOP SECRET (BYEMAN) directive to the Military Services dated October 11, 1966, Mr. Orr could no longer perform a significant role in this NASA experiment.

Informal discussions as to possible solutions to the problem which this action poses have been held with Lt. General Cassidy and Maj. General Stewart.

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We feel that the success of this experiment and the continued participation of some of the experimenters will depend in large degree upon the availability of Mr. Orr to serve as Principal Investigator, since we have been unable to find any other person who can match Mr. Orr's technical background and experience in this field. Mr. Orr has indicated that, because of his scientific interest, he would like to continue with this project if it were determined to be in the national interest that he do so. Furthermore, we recognize that it is the desire of the DOD to assist NASA in this important work to the maximum extent compatible with security restrictions, which we fully understand. In light of these considerations, it appears to us that there are three possible arrangements which would meet our requirements. In order of preference from NASA's viewpoint, these are listed as follows:

- (a) As an exception to the GUIDELINES referred to above, the DOD authorize Mr. Donald Orr to act as Principal Investigator as an individual, while continuing in his NASA-funded position with GIMRADA.
- (b) The DOD assign Mr. Orr to NASA as a detailee for a normal three-year tour of duty under arrangements similar to those under which several NASA civilian employees are now detailed to the DOD.
- (c) The DOD concur in an outright transfer of Mr. Orr to NASA.

Since we feel an urgent need to continue the work on the Multispectral Photographic Experiment without interruption, we hope to have your early concurrence in one of these alternatives.

With much appreciation for your past assistance in this area,

Sincerely,

Robert C. Seamans, Jr.

Robert C. Seamans, Jr.
Deputy Administrator

~~TOP SECRET~~

15 October 2015

~~TOP SECRET~~

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NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.

DIRECTOR

October 11, 1966

MEMORANDUM FOR THE SECRETARY OF THE ARMY
THE SECRETARY OF THE NAVY
THE CHIEF OF STAFF, USAF

SUBJECT: DOD Participation in NASA Earth Sensing Programs

We have recently reviewed and coordinated on a proposed NASA program to develop and operate a Multiband Synoptic Photographic Experiment (also known as the Multispectral Experiment). Review of the proposed NASA program was carried out in consultation with DDR&E and was conducted under policies established by Deputy Secretary of Defense memorandum, "DOD Needs for Earth Sensing from Satellites," dated August 30, 1965.

The purpose of this letter is to advise you of our position on the Multispectral Experiment, and to request that you direct action to insure that DOD elements and personnel responsible to you are informed of the governing policies. The DOD position on this program as stated in my reply to NASA (Attachment 1) was specifically approved by Mr. Vance with respect to these policies and related questions, and is summarized as follows:

(1) DOD personnel will not make oral or written statements implying current or intended DOD endorsement of, direct participation in, or co-sponsorship of NASA satellite programs such as the Multispectral Experiment which can be claimed to have reconnaissance implications. The established ESSA/NASA meteorological satellite programs are excepted, so long as DOD involvement is limited to meteorological matters. DOD support of NASA not peculiar to an earth sensing mission, such as launch, range, and tracking station services, is not precluded.

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15 October 2015

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(2) The National Reconnaissance Office has the sole responsibility for all DOD activities in satellite reconnaissance, and no open acknowledgment of such activity, either current or planned, is authorized.

(3) DOD agencies and personnel will not be authorized to participate in open NASA space experiments involving optical sensors.

(4) DOD agencies and personnel will be authorized to participate in and provide logistical and technical support to NASA aircraft-borne earth sensing programs in accordance with approved DOD procedures and DOD/NASA agreements, but such participation shall not extend to NASA satellite programs which may follow, and special care must be taken to insure that DOD is not associated with such follow-ons to aircraft programs in any public announcements.

It is essential that these policies be disseminated promptly to the many DOD agencies having interests in earth sensing programs. To assist you in releasing this information outside the BYEMAN system, I have attached a set of guidelines having TOP SECRET classification.



Alexander H. Flax

Attachments

cc: Dr. Foster
Lt. Gen. Carroll
Secretary Sylvester

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~~TOP SECRET~~ NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.



OFFICE OF THE DIRECTOR

September 13, 1966

Dear Bob:

This is in response to your letter of June 23, 1966, regarding NASA's proposed Multispectral Photographic Experiment.

In accordance with the existing DOD/CIA-NASA agreement and the supplement thereto, this Experiment does not involve sensors of reconnaissance quality and I see no objection from the standpoint of the NRO to NASA proceeding with it as described in the attachment to your letter.

Arrangements for the actual conduct of the Experiment (particularly with regard to any orbits involving overflight of denied areas) as well as the exploitation of the camera products are, of course, to be worked out in accordance with Recommendation No. 1 of the NSAM 156 Ad Hoc Committee July 11, 1966 Report.

However, since the question of DOD participation in the Multispectral Experiment has implications extending beyond the NRO to the Department of Defense at large, I have discussed the question with the appropriate officials in the Office of the Secretary of Defense.

While there is, of course, intense DOD interest in scientific advances in such fields as geography, oceanography, and the environmental sciences generally, we believe that new satellite-borne sensor systems are neither the only way nor necessarily the best way to collect much of the pertinent data. When weighed against possible international sensitivity, the benefits which could accrue are not sufficient to warrant

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and participation by scientifically-oriented agencies of the DOD in activities which can be claimed to have reconnaissance implications. With respect to the important military applications of satellite reconnaissance, the NRO has the sole responsibility for all DOD activities in this field and no open acknowledgment of such activity, either current or planned, is authorized.

Our studies have shown that the particular military advantages of satellite reconnaissance arise from its ability over foreign territories denied to aircraft overflight by heavy defenses or a political inhibition. Otherwise most military reconnaissance is best performed from aircraft. This does not involve high quality sensors and DOD aircraft sensor activity is not limited to the NRO. We are, therefore, interested in the aircraft-borne sensor experiments which NASA plans to conduct and appropriate DOD agencies will be authorized to participate and to provide logistical and technical support in accordance with approved DOD procedures and DOD/NASA agreements if that is appropriate. However, DOD agencies and personnel will not be authorized to participate in open NASA space experiments with optical sensors. This is, of course, not intended to preclude DOD support not peculiar to the earth sensing program such as launch, range, and tracking station services.

In light of the above, we request that you delete from the Multispectral Experiment brochures any reference to or denotation of DOD endorsement, direct participation, or co-sponsorship (i.e., letters such as those included from the U. S. Oceanographic Office, the Office of Naval Research, the Army Cold Regions Research Laboratory, etc.).

Sincerely,



Alexander H. Flax

Dr. Robert C. Seamans, Jr.
Deputy Administrator
National Aeronautics & Space Administration
Washington, D. C.

15 October 2015

GUIDELINES FOR DOD PARTICIPATION
IN
NASA EARTH SENSING PROGRAMS

I. POLICY

The Deputy Secretary of Defense has directed all agencies of the DOD to deal exclusively with the Assistant Secretary of the Air Force (R&D) on matters concerning satellite-borne image forming earth sensors. Direct contacts with the NASA, or statements, either oral or written, to persons outside the DOD which could be interpreted as indicating endorsement or sponsorship of, or participation in, NASA programs involving such sensors, are specifically prohibited. The established ES&A/NASA meteorological satellite programs, TIROS, NIMBUS, POAS and KOMSS, are excepted from this prohibition.

II. EXPLANATION

International relations of the United States and previous public statements by this Government require that no action be taken by any member of the Department of Defense which would support in any way a claim that NASA satellite programs are directly supporting military objectives. Further, the

Attachment 2

17 of 17
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Department of Defense must examine any requests made of other Department agencies to insure that they cannot be more economically met within existing and planned DOD resources.

Use of the data desired by DOD agencies from NASA can be obtained more rapidly, at less cost, and with higher accuracy by using existing DOD aircraft as sensor platforms. All agencies are urged to exploit this resource to meet valid requirements.

RECOMMENDATION

A. DOD agencies and personnel should not

a. Levy requirements on NASA for data, either raw or processed, which are to be obtained from satellite-borne image forming earth sensors, or

b. Indicate in any way, actual or intended DOD participation in, or co-sponsorship of, or endorsement of NASA satellite programs employing image forming earth sensors (NASA/NASA meteorological satellite programs are excepted).

B. DOD agencies should submit validated requirements for data to be obtained from satellite-borne earth sensors directly to the Assistant Secretary of the Air Force (R&D).

C. DOD personnel may attend technical meetings at various points of results of NASA satellite activities are discussed provided paragraph 3A, above, is not violated.

D. DOD agencies and personnel may participate in and provide logistical and technical support to NASA aircraft-borne earth sensing programs in accordance with approved DOD procedures and DOD/NASA agreements.

E. DOD support not peculiar to the earth sensing mission such as launch, range, and tracking services may be provided to NASA satellite earth sensing programs in accordance with approved DOD procedures and DOD/NASA agreements.

F. When NASA requests participation of a DOD agency or individual in a technical consulting or technical support activity relative to the satellite earth sensing program, such request should be forwarded directly to the Assistant Secretary of the Air Force (P&D) for guidance as to the appropriate response and approval.

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15 December 2015

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TO: AFSC

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AFETR PATRICK AFB FLA

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~~CONFIDENTIAL SAFOI, AFSC (SCE), SAMSO (SME), AFETR (BTN).~~

SUBJECT: Information Policy on Termination of the Lunar Mapping and Survey System.

1. Background Facts:

A. Early in the development of the Apollo manned lunar landing program, it was decided that in addition to moon landing site certification efforts such as surveyor and lunar orbiter, it would be prudent to develop an additional back-up capability. This capability was to be designed so that, if not needed for site certification, it could be employed as a scientific survey and mapping tool for lunar exploration.

B. NASA requested assistance from DOD in designing and producing an automated camera system for the LMSR mission because of DOD's extensive experience in the development of

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APPROVED FOR RELEASE

50945

ROBERT HERMANN
 Major, USAF
 Assistant for Information, SAFSL

HERBERT L. WURTH, Colonel, USAF
 Chief, Public Information Division
 OFFICE OF AIRCRAFT

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15 December 2015

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acrial photographic systems. Following the pattern of other joint efforts, NASA and DOD, concluded an agreement for the acquisition of the LM&SS.

C. NASA, DOD and various contractors completed studies to determine such things as performance characteristics, weight limitations and other details for the LM&SS. Development and fabrication of the system was undertaken by Eastman Kodak Co. and the Lockheed Missiles and Space Company under the supervision of the Space and Missile Systems Organization (SAMSO) of the Air Force Systems Command. The system was to be delivered to NASA in mid-1968.

D. NASA has advised DOD that the Surveyor and Lunar Orbiter programs have provided sufficient data for the selection of Apollo lunar landing sites cancelling the requirement for a precursor orbital Apollo mission for site identification; and a NASA reevaluation of the system for possible use in the Apollo Applications Program indicated that current program schedules and requirements plus budgetary considerations made this undesirable. Therefore, NASA decided to terminate the LM&SS. The DOD has been asked to consider appropriate disposition of existing hardware components.

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2. Information policy and procedures.

A. Public information activities relating to the development and current status of the LM&SS system developed for NASA by DOD will be carried out basically in accordance with NASA information policy and procedures. However, security considerations require that the guidance and procedures outlined below be followed by all concerned.

B. NASA does not plan to issue a news release or volunteer a statement to the press on this subject. They plan to respond to query only when the action becomes known through its notation as one entry among many program changes necessitated by the FY 68 and FY 69 budget situation.

C. DOD public information activity will also be on a "response to query" basis only. Responses to queries should be based on the information contained in para one above or para three below.

D. Any statements relating to the LM&SS system will reflect clearly the limited role of DOD in the project as stated in the NASA/DOD agreement of April 20, 1964: "The Air Force as responsible DOD agency will provide technical assistance to NASA by developing and providing manned lunar

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mapping and survey flight equipment to meet NASA's requirements." However, no attempt should be made to withhold unclassified information on the assistance provided by the AirForce in developing the system. Such references should be treated as another example of DOD assistance to NASA in national space exploration programs.

E. Responses to queries will reflect the fact that development of the LMSSS equipment was undertaken strictly for NASA's use in its lunar program. Now that the program has been terminated DOD has been asked to make appropriate disposition of the hardware components. No statement will be made regarding any potential DOD or NASA use for such equipment.

F. Queries regarding reasons for termination of development will be referred to NASA. Queries received by AF officials on DOD involvement which cannot be answered within the context of the material in para one above or para three below, will be referred to DOD.

G. NASA will refer queries regarding AF involvement in the LMSSS to SANSO Director of Information.

H. LMSSS contractors will not volunteer statements, and will refer requests for information beyond the fact that

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they were LMSS contractors to SAMSO or NASA.

1. LMSS camera equipment will not be publicly displayed, and pictures or drawings of the equipment will not be released.

2. Information regarding LMSS camera system design, specifications and capabilities will not be released.

3. Answers to potential queries:

A. Question: Why was the Apollo M&S development conducted by the DOD?

Answer: NASA relied heavily on DOD consultation for both the lunar orbiter and the Apollo M&S systems. The matter of aerial photographic systems has, of course, been a technology pursued by the DOD since the early days of aviation, and they have greatly advanced the state-of-the-art with respect to aerial photographic systems. Under Apollo M&S, it was largely a decision involving how best, in terms of management, to apply the long continuity of the DOD people in this field, to this very exacting mission.

B. Question: Is this the SAMOS camera?

Answer: This camera was developed specifically for the Apollo lunar mission. (DOD policy is not to comment on this former project name or any speculation about it.)

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C. Question: What are you going to do with the equipment now?

Answer: It will be stored pending a decision on possible future uses.

D. Question: Who in the DOD was doing this work?

Answer: The USAF under the Air Force Systems Command at the Space and Missile Systems Organization which has provided support to NASA on other space projects.

E. Question: Who were the contractors working with the Air Force on the project?

Answer: Lockheed Missile and Space Company was the prime contractor, responsible for building the payload module and integrating the cameras into the payload module. Eastman Kodak and ITEK Corp. were building camera systems.

F. Question: Can we see the equipment? If not, why?

Answer: No, it involves classified technology.

G. Question: Didn't LMSC also work on the SAMOS Program?

Answer: (No comment.)

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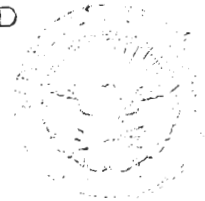
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H. Question: Is the system adaptable to an earth mapping or reconnaissance mission?

Answer: This system was designed to meet specific requirements of the Apollo program. Similar requirements have not been established for earth application. GP-4.

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OFFICE OF THE SECRETARY



14 April 1967

MEMORANDUM FOR RECORD

SUBJECT: Information Release on UPWARD

Mr. Floyd Sweet, NASA, called me on 12 April to advise that Julian Scheer, NASA Director of Public Information, had been called by a representative of "Technology Week" (formerly "Missiles and Rockets" and asked the question, "who builds the LM&SS camera for you?"

I consulted with Colonel Ford on this matter this morning. We agreed to proceed on the basis of the existing plan for such a release. I called Mr. Sweet and gave him the highlights of the release:

1. Q: Who builds the LM&SS camera for you?

A: The Department of Defense. If pressed, may say "The Air Force". If pressed further, may say "the Space Systems Division".

2. Q: Who is the DOD's contractor?

A: LMSC is the prime. The subcontractor is Eastman Kodak, operating on a fixed price basis.

3. Q: Describe the camera ?

A: Since the camera is being built by the DOD, we are not the agency to query for technical details. Furthermore, the technical details of the camera are classified.

4. Q: What resolution do you expect from the camera?

A: This is the type of technical information that is in the DOD domain.

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UPWARD

15 December 2015

UPWARD

5. Q: Do you plan to fly this camera in earth orbit?

A: There is no such plan at this time. (This jibes with with NASA's proposed congressional testimony).

6. Q: Do you plan to release the lunar photographs taken by LM&SS?

A: Yes.

I urged Colonel Sweet to call me if he or Mr. Scheer had any questions.

According to plan (and all participants are being reminded of this plan today by Colonel Ford), LMSC, when queried, will say "No comment." Ditto for Eastman Kodak. If SSD is queried, SSD will confirm that it has this responsibility.

PAUL E. WORTHMAN
Colonel, USAF

Paul E. Worthman
Colonel, USAF
15 December 2015

UPWARD

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MINUTES OF THE FOURTH MEETING
MANNED SPACE FLIGHT POLICY COMMITTEE
THURSDAY, FEBRUARY 9, 1967, 2:00 PM
THE PENTAGON

The fourth meeting of the Manned Space Flight Policy Committee was held on February 9, 1967 in Room 2D921, The Pentagon at 2:00 PM. Dr. Foster presided, The following were in attendance:

DOD

Dr. John S. Foster, Jr.
Mr. Daniel J. Fink
Dr. Alexander H. Flax
Lt. Colonel William R. Yost, DOD Secretary

NASA

• Dr. Robert C. Seamans, Jr.
Dr. George E. Mueller
Dr. Homer E. Newell
Mr. Floyd J. Sweet, NASA Secretary

Item 1 - The minutes of the meeting of September 12, 1966 were approved.

Item 2 - Further discussion of the study of updated TITAN III/MOL Information:

A summary statement on NASA consideration of possible use of the TITAN III M or TITAN III M-MOL for the NASA Post-Apollo Manned Space Flight Program was presented. The conclusions of the NASA study were:

a. A decision at this time to discontinue use of the Uprated Saturn I - Apollo system and to introduce in its place either the TITAN III M launch vehicle or the TITAN III M-Uprated MOL system for use in the non-military post-Apollo manned space flight program would not be technically desirable or clearly cost effective.

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b. Use of the Uprated Saturn I-Apollo system will take advantage of and maintain continuity with the Apollo program and avoid the prospect of a hiatus of 18 months to 3 years which might jeopardize the U.S. position in space.

c. Assuming success in the experimental program now planned, a capability for long duration flight of one year or more could be available sooner and at less cost by proceeding in FY 1968 and subsequent years with the Uprated Saturn I-Apollo system.

d. If the experiments to be undertaken by NASA with the Uprated Saturn I-Apollo system and by DOD with the MOL system indicate a requirement for a non-military program involving a large number of missions within the capabilities of the MOL system, the use of the TITAN III M-MOL or a modification thereof should receive careful consideration.

The position NASA planned to take regarding the Apollo Applications Program in its testimony before Congress on the FY 1968 budget was discussed in some detail.

Considerable time was devoted to a discussion of the costing of program objectives, the prospect and implications of a discontinuity in the manned earth orbital program, availability of the alternative configurations, and the requirement for long duration flights.

Some concern was expressed by the DOD representatives that a truly "joint" study had not been accomplished -- that DOD had merely provided the cost information that was applied by NASA in the costing of the alternatives. A further concern by DOD was that the costing had been accomplished by NASA against a particular desired flight plan rather than against a set of mutually agreed-upon objectives and hence could not be considered a fair evaluation.

Mr. Fink then tabled, for NASA review and comment, a DOD paper on "terms of reference" for a proposed MSFPC Ad Hoc Study Group on a National Earth-Orbital Manned Space Flight Program as a suggested starting point for a joint study.

It was agreed that an additional study should be initiated. However, the terms of reference to be used were to be subject to revision pending more complete review by NASA. Following agreement on terms of reference, the joint study group would proceed to cost out the program objectives for the several options.

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It was noted that such a study would be essential in complying with a PSAC recommendation that the suitability, cost and availability of the TITAN III M vehicle and the TITAN III M - MOL system for use in the AAP be carefully studied prior to investments on hardware beyond program commitments implied in the FY 1968 budget. This item was continued to the Agenda for the next meeting.

Item 3 - Space astronomy as related to the MOL Program

Dr. Newell discussed NASA's findings on the suitability of MOL telescopes and flight missions for astronomical research. Four categories of application of MOL technology were examined:

a. Use of existing design and equipment configuration, requiring no significant modification or addition to the basic instrumentation or operation plan.

b. Provision of an alternate image station in the current design of instrument, to accommodate specialized analytical detectors such as spectrometers, interferometers, photometers, and polarimeters.

c. Designing the following generation of instrumentation to provide capabilities for specialized astronomical observations.

d. Application of MOL technology (components, subsystems, procedures, etc.) to the development of NASA's cognate instrumentation.

Category a. application was considered to be of interest to NASA. Dr. Newell recommended the acquisition of such observations as MOL missions could support on a non-interference basis.

Category b. application was found to require extensive modification to the MOL altitude control and stabilization systems and, thus, was not considered to be an attractive opportunity.

Category c. application was found to be very costly and in design conflict with some of the requirements on MOL hardware. This category of development was not recommended.

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Category 4. offered significant benefits to the NASA program but subject to certain security constraints. Dr. Newell recommended continued exploration of this category of cooperative effort.

It was agreed that at such time as the MOL Program Office proceeded with its specific mission planning, a cooperative effort for the acquisition of such observations could be arranged between NASA and the DOD.

Item 4 - Report concerning the activity of the NASA-DOD Survey Applications Coordinating Committee (SACC).

Dr. Mueller presented a brief report on the activity of the SACC. He stated that the Committee had proved a very useful medium for developing a common understanding of areas of mutual concern and for the exchange of information. To date, the matters of primary concern have had to do with cameras for use in the NASA Earth Resources Survey Program and the NASA Lunar Mapping and Survey System.

Item 5 - Review of NASA intentions for Project UPWARD

NASA's plans for test of LM&SS hardware in Earth orbit were discussed. The requirements for earth orbital tests to demonstrate optical camera performance and functional performance of the camera subsystems, specifically the passage of film, were reviewed. Some concern was expressed over the handling of the products of any Earth photography and the "cover" story to justify the on-board presence of the LM&SS hardware as well as the classification of the photographs, if any are taken in earth orbit.

The provisions of the Security Annex to the August 28, 1963 DOD/CIA-NASA Agreement on NASA Reconnaissance Programs were reviewed. Dr. Flax iterated the specific provision that the products of Earth photography would require special TOP SECRET handling in the TALENT-KEYHOLE security system.

It was agreed that the SACC should undertake immediately to devise alternative plans for the earth-orbital test contingency and to report its recommendations to the MSFPC.

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In connection with this item, Dr. Flax noted that he had just received a letter from Dr. Hornig expressing concern over "possible public pressure" to release LM&SS photography, if the plans for such flights as a part of NASA's 1968 program were made public. Dr. Hornig had suggested that any public discussion of this matter be carefully designed to conform with a prearranged plan for handling such a contingency.

Dr. Flax stated that his response to Dr. Hornig's letter would indicate a general agreement on the broad outlines for such a plan and that further specific details were being worked on by the SACC for policy level review and approval.

Item 6 - Guidance to NASA on interpretation of the policy on "DOD Participation in NASA Earth Sensing Programs"

Dr. Newell stated that NASA's concern on this item centered about two issues:

a. A NASA request for the technical assistance of Mr. Donald Orr, USAEGIMRADA

and

b. The participation of NAVOCEANO in the NASA Earth Resources Survey Program.

On the first issue, Dr. Newell suggested as the preferred arrangement -- the assignment of Mr. Orr to NASA as a detailee for a normal three-year tour.

Dr. Flax felt that such an arrangement was possible if the Army were willing. He agreed to discuss the matter with Secretary O'Neal. Dr. Seamans also agreed to talk with Secretary O'Neal.

On the second issue, Dr. Foster discussed the Navy's national responsibility in oceanography and suggested that NAVOCEANO develop a program and accomplish it through the NRO. Dr. Seamans explained the funding arrangements for the oceanographic effort and NAVOCEANO's present role in contracting with several universities for support of the NASA program. Dr. Flax suggested the possibility of NASA contracting with the universities directly and requesting NAVOCEANO's technical assistance in coordinating the effort.

It was agreed that Dr. Foster would discuss alternatives with Dr. Flax and Dr. Frosch.

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Action Items:

1(a). Mr. Kirk will brief NASA on DOD rationale supporting its concern that a truly "joint" study of post-Apollo alternatives had not been accomplished. Mr. Kirk will also review for NASA a selected alternative (combining the proposed MOL mission with a proposed NASA biomedical mission) directed toward achieving the most economical one year lifetime on orbit.

1(b). The NASA will respond to the paper tabled by Mr. Fink for a proposed MSFPC Ad Hoc Study Group on a National Earth-Orbital Manned Space Flight Program, and will review the terms of reference to be used for any additional study of the use of various alternatives in the NASA post-Apollo Program.

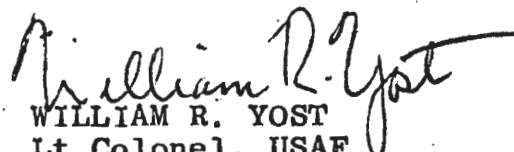
2. The SACC will undertake immediately to devise detailed alternative "cover" plans for the procedural handling of information related to and products resulting from the Earth orbital test flights of the LM&SS (UPWARD). The SACC will report its findings and recommendations to the MSFPC at the earliest possible date.

3. The NRO and NASA will provide interim responses to Dr. Hornig's letter concerning carefully designed public discussion of the LM&SS (UPWARD) experiment, pending a report on specific procedures.

4. Dr. Flax and Dr. Seamans will discuss with Secretary O'Neal the possibility of detailing Mr. Orr to NASA for a three-year tour.

5. Dr. Foster, Dr. Flax and Dr. Frosch will discuss alternative arrangements for NAVOCEANO coordination of NASA oceanographic effort.

The meeting adjourned at 4:00 PM.


WILLIAM R. YOST
Lt Colonel, USAF
DOD Secretary

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WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

August 22, 1967

MEMORANDUM FOR MR. NITZE
MR. HELMS
DR. HORNIG

SUBJECT: NASA Lunar Mapping and Survey System (LM&SS)

On April 28, 1967 (BYE-52292-67), I advised you of the results of an April 20 Manned Spaceflight Policy Committee review of the NASA LM&SS program and of the several options which NASA had agreed to review, specifically:

1. Cancellation of the LM&SS program.
2. Continuation of the LM&SS program, dispensing with the Earth-orbital test.
3. Continuation of the LM&SS program, including Earth-orbital test.

As a result of this review, NASA has now taken action to terminate this program.

On August 3, 1967 NASA asked the NRO to transmit to SAFSP the text of its wire to the NASA Manned Spacecraft Center. The wire relayed the NASA decision "to terminate all activity associated with hardware and software procurement development and test for the LM&SS." The message directed that "no further work effort shall be applied to payload module flight articles numbers 3, 4 and 5" and that it was NASA's intent at an early date "to direct disposition of work effort associated with flight articles numbers 1 and 2 and associated test and support equipment." The message

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requested the NASA MSC Program Office to develop, in cooperation with the Air Force Program Office (SAFSP), an implementation plan to accomplish termination of the LM&SS program in the most cost-effective manner. The preparation and review of this plan is in progress.



Alexander H. Flax

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NATIONAL RECONNAISSANCE OFFICE
WASHINGTON, D.C.



OFFICE OF THE DIRECTOR

February 15, 1967

MEMORANDUM FOR THE DEPUTY SECRETARY OF DEFENSE
SUBJECT: NASA Lunar Survey and Mapping Cameras

Attached are copies of an exchange of memoranda between Don Hornig and myself on the subject of the NASA Lunar Survey and Mapping Cameras which are to be flown in Earth orbit as part of the Apollo Applications Program. The essential item of concern to the NRO in this equipment is the main camera which is a modified GAMBIT camera installed in a modified GAMBIT-CUBED spacecraft.

Originally, as I understand it, we agreed to release this item to NASA in order to provide a backup for surveying sites for the manned lunar landing in the event that the Lunar Orbiter and Surveyor unmanned programs did not provide adequate information. A secondary objective was to provide scientific lunar mapping information. The DOD/CIA-NASA security agreement provided that photographs taken during checkout in Earth orbit (if such were necessary) would be classified in the TALENT/KEYHOLE System.

At present, it appears that use of this system is no longer considered essential in establishing the manned lunar landing site; therefore, the objective is entirely scientific mapping of the Moon. Moreover, the Earth orbital checkout has changed from a straight-forward short-term test program to an involvement with a long-duration set of Apollo Applications missions. This has and will continue to pose many problems not originally contemplated, some of which are the subject of Don Hornig's concern.

From a program management standpoint, there are additional problems relating to the extended period over which NASA now intends to use the GAMBIT System. First, since we will be closing

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out the program at the end of June 1967, it will be necessary to maintain an Eastman Kodak capability to support the GAMBIT on behalf of NASA for a long and at present indeterminate period. This will undoubtedly raise the costs to NASA over those originally estimated. Second, the GAMBIT hardware is designed for a straight-line flow from factory to launch pad; the NASA schedule involves storage of manufactured equipments for long periods. New and perhaps more costly procedures will have to be developed for re-qualification and checkout of equipment after long periods on the shelf. We have called these and other problems to NASA's attention, but they still desire to retain the Lunar Survey and Mapping Cameras as a continuing element of the Apollo Program.

My attached reply to Don Hornig refers to a DOD/NASA working group which is addressing itself to security and public information problems associated with this system and notes my intention to inform the Executive Committee of the findings and recommendations of this group.

Alexander H. Flax

Alexander H. Flax

Attachment
Ltr to Dr. Hornig
W/Ltr fm Dr. Hornig

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WASHINGTON, D.C.

THE NRO STAFF



3 February 1967

MEMORANDUM FOR DR. FOSTER
MR. FINK

SUBJECT: NASA Plans Regarding UPWARD

Dr. Flax has asked that I furnish you the attached information in anticipation of discussion of this subject at the Manned Space Flight Policy Committee Meeting scheduled for February 9, 1967.

David L. Carter
DAVID L. CARTER
Colonel, USAF

Attachment

cc: Dr. Koslov
LtCol Yost

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UPWARD is the BYEMAN codeword under which the lunar mapping and survey system (LM&SS) is being developed for NASA by the NRO. The survey camera is a modification of GAMBIT hardware and the mapping camera is a version of the 1½ inch focal length terrain camera used on CORONA and GAMBIT.

NASA has recently revised the schedule for flight test of the LM&SS. The key paragraph in the letter from Dr. Mueller to Dr. Gilruth which revised the schedule is quoted as follows:

"It now appears that the Surveyor and Lunar Orbiter data will probably support the selection of safe sites for the initial lunar landings. Thus, the demanding LM&SS schedule requirements for the initial landing site survey mission can now be relaxed. Therefore, to make possible the development of an earth and lunar orbital sensor capability capitalizing on the investment to date in the LM&SS, you are hereby requested to reschedule development to support a first possible lunar orbital mission on or after June 1, 1968, and also to plan for an earth orbital test mission with the LM&SS on the AAP-1 launch in June 1968. These schedules will be reflected in forthcoming changes to flight mission assignments and to Apollo Program Directive 16A."

This schedule revision does not include the possible impact of the recent fatal accident in the Apollo I.

The June 1968 flight in earth orbit is the first in a series of 4 orbital flights now designated AAP-1 through 4. NASA's plans for these flights are as follows:

a. Launch vehicle AAP-1 into an earth orbit of about 120 n.m. in mid-1968. The primary payload will be LM&SS hardware and the purpose of this flight is to exercise this system and the procedures for its use. The exact test program has yet to be defined.

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b. After 4 or 5 days, a second vehicle, AAP-2 (unmanned) would be launched into a 260 n.m. orbit. AAP-1 would then increase its orbital altitude to 260 n.m. and dock with AAP-2. The 2 additional vehicles would remain in orbit an additional 23 days, whereupon the astronauts will return to earth with the data acquired. The two docked modules would be left in orbit.

c. About six months later, the mission would be repeated in vehicles AAP-3 and AAP-4, except that all 4 vehicles would be joined together and would result in a workshop in space composed of these four vehicles. A NASA picture depicting this configuration is attached. Experiments that are planned for the second series of flights include re-exercise of the LM&SS camera and operation of the manned Apollo telescope (ATM); ATM is a combination of experiments involving solar observation.

NASA states that the purpose of re-operating the LM&SS camera after a 6-months inactive period, is to demonstrate the capability to remain in lunar orbit for long periods of time and then to operate; such an operational concept may be desirable in order to get full coverage of the moon. NASA has asked the NRO to study the impact and tradeoffs involved in reconfiguring LM&SS hardware for storage in space, and subsequent reactivation.

In recent meetings of elements of the NASA Apollo Applications Working Group (for example, at Houston on December 6-9 1966) a variety of additional image forming sensors have been considered for flight on AAP-1 through 4. Sensors considered include:

- a. A camera from the unmanned lunar orbiter
- b. 12 inch focal length panoramic camera
- c. The multispectral experiment reviewed earlier by the DOD
- d. 6 inch focal length mapping camera
- e. Telescope using Questar lens (56 inch focal length) and with simplified tracking and focusing device.
- f. An imaging radiometer.

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At the most recent meeting of the DOD-NASA Survey Applications Coordinating Committee, these additional sensors were discussed, and NASA stated that as of that date (January 31, 1967) there were no sensors other than the LM&SS approved for flight on AAP-1.

NASA's current plans do involve extensive flight test of LM&SS hardware in earth orbit beginning in mid-1968. NASA may be required to discuss these plans in an unclassified fashion during the forthcoming cycle of Congressional and Budget Hearings.

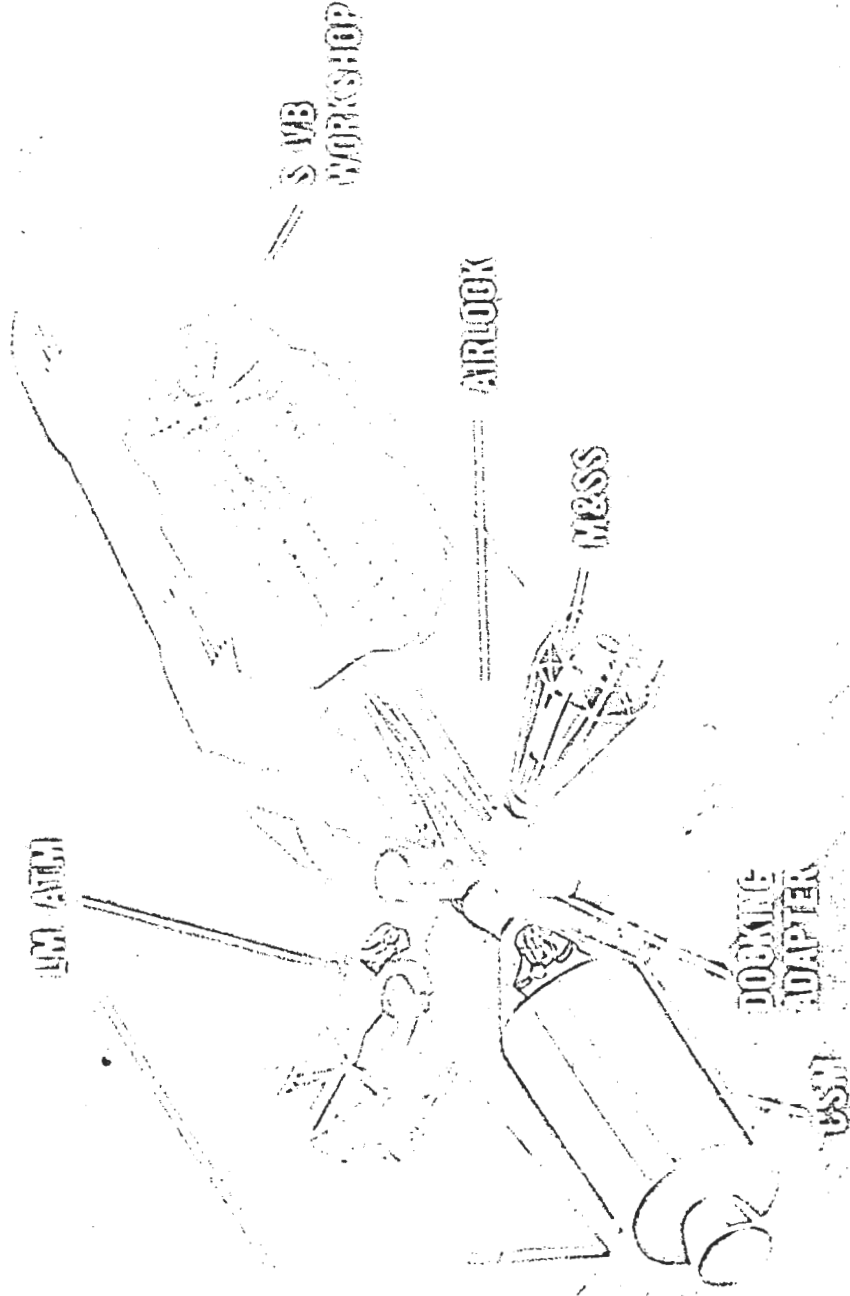
This subject has been placed on the agenda for the Manned Space Flight Policy Committee for the meeting of February 9, 1967.

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EQUIPMENT IN ORBIT AT END OF 1968



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WASHINGTON, D.C.

GAMBIT
UPWARD

THE NRO STAFF



15 February 1967

MEMORANDUM FOR DR. FLAX

SUBJECT: NASA Use of the UPWARD Cameras in Earth Orbit

PURPOSE:

To respond to Admiral Taylor's letter of February 13, 1967 on the above subject. (Tab A)

DISCUSSION:

Admiral Taylor has reviewed the recent letters from Dr. Hornig to you and to Dr. Seamans. (Tab B)

He has stressed the importance of:

1. Guiding any public discussion by NASA of the use of the GAMBIT camera in Earth orbit and
2. Protecting any photography of the Earth in the TALENT-KEYHOLE system.

RECOMMENDATION:

That you sign the proposed response at Tab C.

William R. Yost
 WILLIAM R. YOST
 Lt Colonel, USAF

GAMBIT
UPWARD

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WASHINGTON, D.C.



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OFFICE OF THE DIRECTOR

February 15, 1967

MEMORANDUM FOR THE DEPUTY SECRETARY OF DEFENSE

SUBJECT: NASA Lunar Survey and Mapping Cameras

Attached are copies of an exchange of memoranda between Don Hornig and myself on the subject of the NASA Lunar Survey and Mapping Cameras which are to be flown in Earth orbit as part of the Apollo Applications Program. The essential item of concern to the NRO in this equipment is the main camera which is a modified GAMBIT camera installed in a modified GAMBIT-CUBED spacecraft.

Originally, as I understand it, we agreed to release this item to NASA in order to provide a backup for surveying sites for the manned lunar landing in the event that the Lunar Orbiter and Surveyor unmanned programs did not provide adequate information. A secondary objective was to provide scientific lunar mapping information. The DOD/CIA-NASA security agreement provided that photographs taken during checkout in Earth orbit (if such were necessary) would be classified in the TALENT/KEYHOLE System.

At present, it appears that use of this system is no longer considered essential in establishing the manned lunar landing site; therefore, the objective is entirely scientific mapping of the Moon. Moreover, the Earth orbital checkout has changed from a straight-forward short-term test program to an involvement with a long-duration set of Apollo Applications missions. This has and will continue to pose many problems not originally contemplated, some of which are the subject of Don Hornig's concern.

From a program management standpoint, there are additional problems relating to the extended period over which NASA now intends to use the GAMBIT System. First, since we will be closing

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GAMBIT

out the program at the end of June 1967, it will be necessary to maintain an Eastman Kodak capability to support the GAMBIT on behalf of NASA for a long and at present indeterminate period. This will undoubtedly raise the costs to NASA over those originally estimated. Second, the GAMBIT hardware is designed for a straight-line flow from factory to launch pad; the NASA schedule involves storage of manufactured equipments for long periods. New and perhaps more costly procedures will have to be developed for re-qualification and checkout of equipment after long periods on the shelf. We have called these and other problems to NASA's attention, but they still desire to retain the Lunar Survey and Mapping Cameras as a continuing element of the Apollo Program.

My attached reply to Don Hornig refers to a DOD/NASA working group which is addressing itself to security and public information problems associated with this system and notes my intention to inform the Executive Committee of the findings and recommendations of this group.

Alexander H. Flax

Alexander H. Flax

Attachment
Ltr to Dr. Hornig
W/Ltr fm Dr. Hornig

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PRIORITY CHARGE
UPWARD

PART I. HQ NASA HAS ASKED THAT WE TRANSMIT THE TEXT OF THE FOLLOWING MEMORANDUM FROM DR. SEAMANS TO THE ASSOCIATE ADMINISTRATOR FOR MANNED SPACE FLIGHT TO YOU FOR YOUR GUIDANCE AND NECESSARY ACTION:

" MEMORANDUM FOR M/ASSOCIATE ADMINISTRATOR FOR MANNED SPACE FLIGHT

SUBJECT: TERMINATION OF THE LUNAR MAPPING AND SURVEY SYSTEM

HAVING FURTHER REVIEWED THE LMSS TERMINATION PLAN, I HAVE DETERMINED THAT IT WOULD NOT BE IN THE AGENCY'S INTEREST TO PROCEED WITH THE OPTION A SUGGESTED IN YOUR MEMORANDUM OF AUGUST 21. THE PROBLEMS OF RETENTION AND STORAGE OF CLASSIFIED EQUIPMENT OVERRIDE THE APPARENT POTENTIAL VALUES OF HAVING SUCH EQUIPMENT AVAILABLE IN THE EVENT OF NEED; PRESENT PROGRAM PLANNING DOES NOT, AS YOU KNOW, ENVISAGE SUCH SOPHISTICATED MISSIONS AS MIGHT MAKE USE OF LMSS HARDWARE FOR MANY YEARS.

IT IS STILL MY INTENTION TO REQUEST COMPLETE DECLASSIFICATION OF THE MAPPING CAMERAS; IF THIS TURNS OUT TO BE POSSIBLE, WE WOULD THEN RETAIN THE HARDWARE, DOCUMENTATION, AND GROUND SUPPORT EQUIPMENT PRESENTLY PACKAGED AND AWAITING SHIPMENT.

WITH THE EXCEPTION OF THE MAPPING CAMERAS MENTIONED ABOVE, ALL OTHER COMPONENTS, HARDWARE, AND DOCUMENTATION BEING PROCURED BY DOD IS TO REMAIN WITH THE AIR FORCE FOR THEIR DISPOSITION OR USE IN THE BEST INTERESTS OF THE U.S. GOVERNMENT AND AT THE LEAST COST TO NASA.

THE ASSOCIATED EQUIPMENT AND COMPONENTS UNDER DEVELOPMENT AT MSC AND NSFC ARE TO BE UTILIZED AS APPROPRIATE IN SUPPORT OF APPROVED PROJECTS.

ROBERT C. SEAMANS, JR.
DEPUTY ADMINISTRATOR "

PART II. WITH RESPECT TO THE MAPPING CAMERA, WE EXPECT TO RECEIVE AN OFFICIAL REQUEST FROM NASA FOR DECLASSIFICATION WITHIN THE NEXT FEW DAYS. REQUEST SAFSP REVIEW THE TECHNICAL ADMINISTRATIVE CONTRACTUAL AND SECURITY ASPECTS OF SUCH AN ACTION AND PROVIDE US WITH COMMENTS AND RECOMMENDATIONS.

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BT



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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON 25, D.C.

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October 4, 1967

OFFICE OF THE ADMINISTRATOR

MEMORANDUM for M/Associate Administrator for Manned Space Flight

Subject: Termination of the Lunar Mapping and Survey System

After further review of the LMSS termination plan, it has been determined that it would not be in the Agency's interest to proceed with the Option A suggested in the memorandum from the Office of Manned Space Flight to the Deputy Administrator of August 21. The problems of retention and storage of classified equipment override the apparent potential values of having such equipment available in the event of need; present program planning does not, under the current budget constraints, envisage such sophisticated missions as might make use of LMSS hardware for many years.

It is still the intention of NASA to request complete declassification of the mapping cameras; if this turns out to be possible, the hardware, documentation, and ground support equipment presently packaged and awaiting shipment at ITEK would be retained by NASA.

With the exception of the mapping cameras mentioned above, all other components, hardware, and documentation being procured by DoD are to remain with the Air Force for their disposition or use in the best interests of the U. S. Government and at the least cost to NASA.

The associated equipment and components under development at MSC and MSFC are to be utilized as appropriate in support of approved projects.

[signed]

Robert C. Seamans, Jr.
Deputy Administrator

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