~~TOP SECRET~~ EYES ONLY

ADVANCED RESEARCH PROJECTS AGENCY
WASHINGTON 25, D. C.

14 000398540

MEMORANDUM FOR THE UNDER SECRETARY OF THE AIR FORCE

SUBJECT: Project VEDAS

Reference: ARPA Order No. 79-59, dtd 8 April 1959.

As I explained to you last week, as a result of considerable study and knowledge of other associated programs, the Advanced Research Projects Agency has defined the basic approach to a mapping and geodetic satellite program (Incl 1 hereto). This approach visualizes a co-equal assignment to elements of the Army and the Air Force with ARPA retaining over-all management supervision. As I stated, ARPA is not concerned with roles and missions in formulating its research programs. We take advantage of the best technical concepts and experience we can find - assignment of a "system" for operation and for logistical support is the responsibility of the Secretary of Defense with the advice of the Joint Chiefs of Staff.

At the present time, funding to carry out the entire program has not been obtained; however, sufficient funds have been assigned the Army (reference cited above) to initiate work on the instrument package (ground-celestial camera and timer) which is the long-lead time item and therefore paces the program. The Director of Defense Research and Engineering has established an "ad hoc" panel to review this project and further funds for its prosecution are dependent upon the outcome of this review.

In the meantime, it is considered that the Air Force will wish to be aware of the areas of responsibility to be assigned to Air Force activities when the program is approved. The specific details of the program are outlined in Inclosure 1 hereto. Further direction and instructions will be issued as the program status is clarified to funding. It is desired that the Air Force take appropriate action to establish the proper lines of communication and information exchanges as required by the management breakdown presented in Inclosure 1. This action is considered essential prior to over-all program approval in order to insure compatibility between the payload and vehicle.

EYES ONLY

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The information contained in this memorandum should be handled in accordance with the security instructions given in Inclosure 1 hereto.

Roy W. Johnson
Director

1 Incl
Amendment No. 1 to
ARPA Order No. 79-59

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SECURITY INFORMATION

ADVANCED RESEARCH PROJECTS AGENCY
WASHINGTON 25, D. C.

14 000396550

ARPA Order No. 79-59
Amendment No. 1

April 15, 1959 Date

TO: Director of Research and Development
Department of the Army
Washington 25, D. C.

In accordance with Paragraph 4 of ARPA Order No. 79-59 and confirming oral instructions to Major General R. J. Wood, Paragraph 2 of ARPA Order No. 79-59, the Advanced Research Projects Agency provides the following initial policy and technical guidance in connection with Project VEDAS.

Security

The Project VEDAS is to be conducted under security clearance of TOP SECRET on a direct working need-to-know basis with authorization and control of clearances maintained by ARPA. Special clearance will be required by individuals participating in the program and such individuals will carry a "V"-clearance status. Enclosure I attached lists the individuals who are currently "V" cleared to participate in this program. Your actions and discussions should be confined to only those individuals on this list. As additional personnel are required on the program, clearance should be established with the Director of Policy and Planning, ARPA. The highly sensitive nature of this program can result in its immediate cancellation if security is breached.

General Program Content

As a result of considerable study and knowledge of other associated programs, the Advanced Research Projects Agency has concluded that the most expeditious, low cost and most-likely-to-succeed approach to a mapping and geodetic satellite program is to utilize the Discoverer Project vehicle--Thor first stage, Bell-Hustler second stage--operating at its current design altitude of 120 n.m., equipped with a payload nose section including a camera capable of achieving the geodetic accuracy and area coverage as presented in the "SALAAM" Proposal. The instrument will require both ground photography and celestial photography incorporating the same basic camera frame with both cameras recording the "SALAAM" type

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format on a single five-inch wide film. Table I, attached, gives general performance guidelines for the vehicle, orbit, stabilization, payload, and collected data. Any major departure from these values must be appraised by ARPA. The ground based tracking, communications, and recovery network associated with the Discoverer Program is adequate for the mapping satellite program and will, therefore, be used for this program. The ground based data handling equipment should be that essentially specified in the "SALAAM" Proposal with maximum use being made of equipment being bought and paid for under the Monticello I and II programs. A total of four vehicle launchings should be planned to carry out the program with the first to take place in approximately mid-May 1960. Six complete payloads should be constructed so as to allow for some flexibility in the program. Launchings will take place from Vandenberg Air Force Base, utilizing the existing launch pad complex associated with the Discoverer Program. The total estimated cost for the complete four-shot program is as follows:

Four Discoverer Vehicles Less Payload
Six Instruments Including R&D
Six Integrated Payload Assemblies
Additional Data Processing Equipment
Data Processing, Handling, and Analysis

[redacted]

Management

The management of this program will be conducted as follows:

The Advanced Research Projects Agency will be responsible for the entire program management, policy guidance, and systems integration. A project office will be set up to carry out these functions and will include liaison engineers in the key subsystem areas. ARPA will be assisted in this program by a review board whose responsibilities will include periodical review of detailed technical status and general program progress. Membership on the board will be from the Army, Navy, Air Force, and industry. In carrying out the program, the U.S. Army will be responsible as ARPA's agent for the complete payload package including camera, ground based data equipment, processing, and analysis (Area III); and the Air Force will be responsible as ARPA's agent for the vehicle, its launch, tracking, and recovery of film (Area II). The industrial systems manager for Area III will be the General Electric Corporation. The industrial systems manager for Area II will be the Lockheed Missile and Space Division. As subcontractor to the systems manager in Area III, ITEK Corporation will be responsible for the design of the instrument, and [redacted] will be responsible for the ground based data handling and processing. Enclosure II, attached, presents the block diagram of the management areas discussed above.

At the present time, funding to carry out the entire program has not been obtained. However, sufficient funds have been assigned the Army (ARPA Order No. 79-59) to initiate work on the instrument package (ground camera--celestial camera and timer) which is the long-lead time item and therefore paces the program. In order to make the best use of funds available for meeting the time schedule set for this program, it is requested that the Army enter into a contract with General Electric Corporation so that G.E. can develop jointly with the ITEK Corporation a work statement that will permit the preliminary design of the instrument package to meet the program needs. The major portion of the initial funds allocated to the Army (ARPA Order No. 79-59) should be directed to the instrument design phase of the program.

The Director, Advanced Research Projects Agency, will continue to provide additional policy and technical guidance either directly or through designated resident representatives as required. In this connection, it is our understanding that Lt. Col. [redacted] is one of the Army's designated resident representatives on loan to assist ARPA in this program area. We are presently working with [redacted] and will continue to do so unless advised by you to the contrary.

The Director of Defense Research and Engineering has established an ad hoc panel to review this project and further funds for its prosecution are dependent upon the outcome of this review. In the interim, the Army, acting as ARPA's agent for Area III, is requested to prepare and submit to ARPA no later than May 15, 1959, a detailed Development Plan including costs, schedules and specific subsystem work to be accomplished in order to comply with the vehicle launch schedule as given herein.

SIGNED

John E. Clark
Rear Adm., USN
Deputy Director

TABLE I

ITEM		SPECIFICATION
Booster first stage		Thor
Booster second stage		Bell-Hustler
Orbital Altitude		120 n.m. (Circular ± 25 n.m.)
Orbital Life		7 Days
Platform Stabilization		Pitch, Roll, Yaw ± 2°
Correction with Horizon Scan in Pitch & Roll to-		.1°
Total Weight of Recovery Vehicle		273 lbs
Recovery Shell	85 lbs	
Propulsion Ejection System	74	
Recovery System	52	
Cassette	12	
Film	50	
	273 lbs	

Complete payload weight including all structure and components forward of bulkhead X (310-1) shall not exceed 400 lbs.

Camera

Film Size		5 Inches
Focal Length		3 Inches (nominal)
Angular Coverage		74° X 74°
Ground Resolution		Not over 260 ft.
Distortion		5 Microns
Shutter		Between-the-lens
Shutter speeds	(Ground Camera)	1/500 sec. to 1/2000 sec.
Format Size	(Ground Camera)	4½" X 4½"
	(Stellar Camera)	1" X 2¼"

TABLE I (Continued)

ITEM	SPECIFICATION
Time Recording	Time trace accurate to 1/1000 second. Also - time accurate to less than 2 seconds over a period of 4 days.
Weight	34 lbs. (Approx)
Cassette Weight	12 lbs.
Operational Data	
Forward Overlap	60%
Ground Width	180 n.m. (Approx)
Film Quantity	2800 - 2900 ft.
Film Weight	48 - 50 lbs.
Film Duration (Photographic Passes)	64 Passes
Climatic Control	$70^{\circ}F \pm 10^{\circ}$

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ENCLOSURE I

Office of the Secretary of Defense

Mr. Donald A. Quarles

Hon. Neil McElroy

Mr. Roy W. Johnson (ARPA)

W. J. McNeil (Asst. Sec. of Def. Comptroller)

Rear Adm. John E. Clark (ARPA)

[redacted]

Dr. Bruce Billings (R&E)

[redacted]

Department of the Army

Secretary Wilber M. Brucker

Maj. Gen. J. M. Willems (ACSI)

General Maxwell D. Taylor

[redacted]

General Lyman L. Lemnitzer

[redacted]

Lt. Gen. A. G. Trudeau (R&D)

Maj. Gen. R. J. Wood (R&D)

[redacted]

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ENCLOSURE 1 (Continued)

Office Chief of Engineers

Maj Gen. E. C. Itschner

Maj. Gen. A. G. Viney

Brig. Gen. S. R. Hanmer

[redacted]

Central Intelligence Agency

Mr. Arthur C. Lundahl

[redacted]

*** NOTICE OF REMOVED PAGES ***

Pages 3 through 5 (Enclosure I) of CORONA, ARGON, LANYARD programmatic information are not provided because their full text remains classified.

[redacted]

ENCLOSURE 1 (Continued)

Department of the Air Force

Sec. James H. Douglas

Under Sec. Malcolm A. MacIntyre

Dr. S. V. Charyk

Gen. T. D. White

Gen C. E. LeMay

Maj. Gen. J. H. Walsh

Brig. Gen H. A. Boushey

[redacted]

Gen. O. Ritland (BMD)

[redacted]

Col. Frederick C. E. Oder (BMD)

[redacted]

Maj. Gen. C. M. McCorkle

[redacted]

Lockheed Corporation

[redacted]

[redacted]

Eugene Root

[redacted]

James W. Plummer

[redacted]

[redacted]

[redacted]

ITEK Corporation

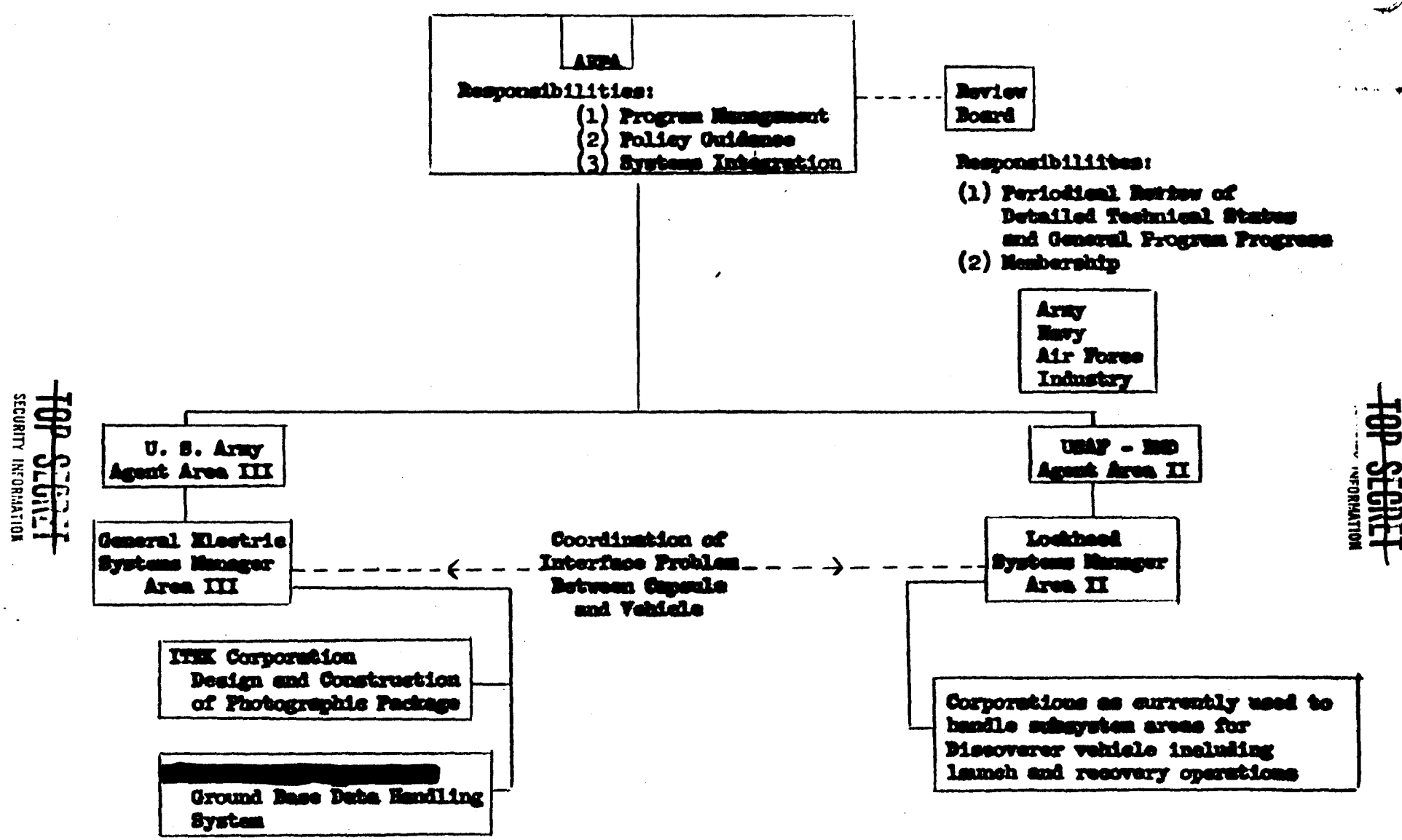
Mr. Richard Leghorn

Mr. Walter Levison

[redacted]

[redacted]

ENCLOSURE II



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