



~~TOP SECRET~~ EYES ONLY

ADVANCED RESEARCH PROJECTS AGENCY
WASHINGTON 25, D. C.



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

COPY 3 OF 5 COPIES

PAGE 1 OF 1 PAGES

~~TOP SECRET~~ EYES ONLY

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

Copy 3 of 3 Copies

Page 1 of 1 Pages



TOP SECRET
SECURITY INFORMATION

ADVANCED RESEARCH PROJECTS AGENCY
WASHINGTON 25, D. C.

FORM NO. 1 (REV. 10-1-58)
14 00039855D

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 "BALAAM" Proposal. The instrument will require both ground photography and celestial photography incorporating the same basic camera frame with both cameras recording the "BALAAM" type

~~TOP SECRET~~
SECURITY INFORMATION

Copy 3 of 5 copies each
of 12 pages series

~~TOP SECRET~~
SECURITY INFORMATION

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 "SALAM" 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	\$15	Million
Six Instruments Including R&D	1.2	
Six Integrated Payload Assemblies	2.5	
Additional Data Processing Equipment	2.2	
Data Processing, Handling, and Analysis	2.4	
	<u>\$23.3</u>	Million

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, ITK Corporation will be responsible for the design of the instrument, and Autometric Corporation will be responsible for the ground based data handling and processing. Enclosure II, attached, presents the block diagram of the management areas discussed above.

~~TOP SECRET~~
SECURITY INFORMATION

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 ITK 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 dependant 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

~~TOP SECRET~~
SECURITY INFORMATION

TABLE I

<u>ITEM</u>	<u>SPECIFICATION</u>
Booster first stage	Thor
Booster second stage	Bell-Bustler
Orbital Altitude	120 n.m. (Circular \pm 25 n.m.)
Orbital Life	7 Days
Platform Stabilization	Pitch, Roll, Yaw \pm 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
	<hr/> 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 2½"

SECURITY INFORMATION

FOR OFFICIAL
SECURITY INFORMATIONTABLE I (Continued)

<u>ITEM</u>	<u>SPECIFICATION</u>
Time Recording	Time trace accurate to 1/1000 second. Also - time accurate to less than 2 seconds over a period of 4 days.
Weight	3 1/4 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°F ± 10°

~~TOP SECRET~~

ENCLOSURE I

Office of the Secretary of Defense

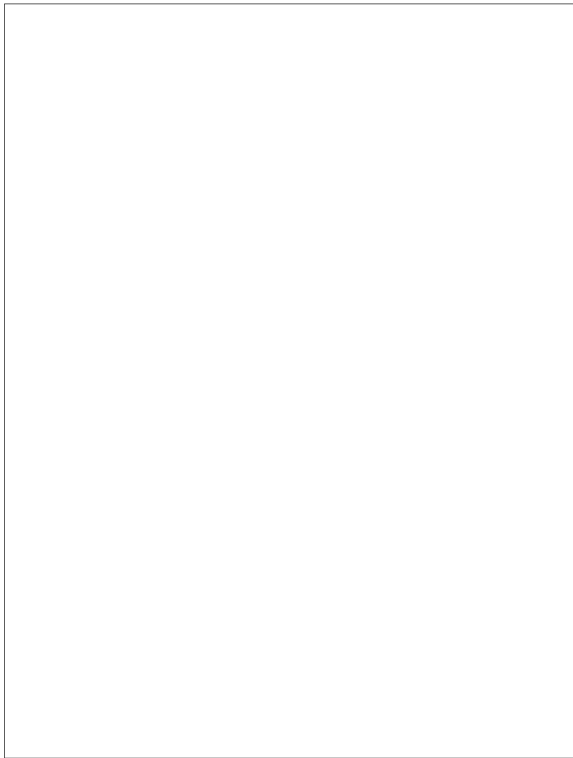
Mr. Donald A. Quarles

Hon. Neil McElroy

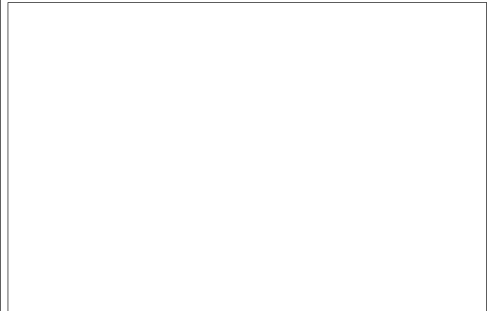
Mr. Roy W. Johnson (ARPA)

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

Rear Adm. John E. Clark (ARPA)



Dr. Bruce Billings (R&E)



Department of the Army

Secretary Wilber M. Brucker

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

General Maxwell D. Taylor



General Lyman L. Lemnitzer

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

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



~~TOP SECRET~~

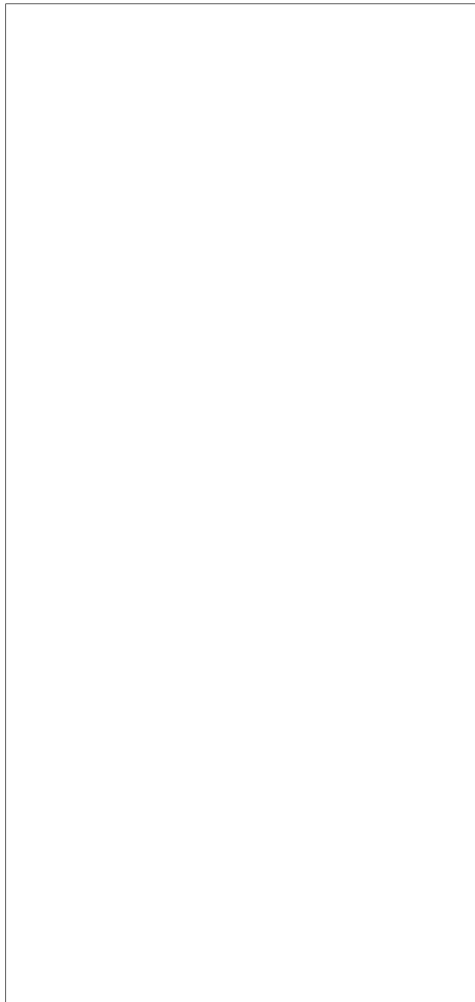
ENCLOSURE 1 (Continued)

Office Chief of Engineers

Maj Gen. E. C. Itschner

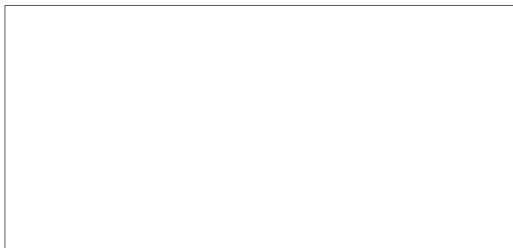
Maj. Gen. A. G. Viney

Brig. Gen. S. R. Hanmer



Central Intelligence Agency

Mr. Arthur C. Lindahl



~~TOP SECRET~~

~~TOP SECRET~~ENCLOSURE 1 (Continued)General Electric Corporation

H. W. Paige	Arry Messick	William Alex Cranston
H. M. Wittner	Albert Fuimira	Phillip NMI Cufaro
R. R. Reid	Albert J. Duffield	Joseph Anthony De Lue
R. B. Chamberlin	G. P. Bieging	Richard William Eagle
Charles L. Robinson	R. V. Anderson	Harold Curtis Giles
Ingaard Clausen	Karl Graf	Raymond George Ivey, Jr.
L. B. Cowles	George Levoy	Joseph Francis Keegan
J. Katzen	Clyde MacDonald	Charles Joseph Kamnik, Jr.
J. M. Hungerford	Leon P. Okurowaki	Leonard Michael Miscannon
Frank Rand	Arnold Kliesrath	John Natale Prestipino
Harold Crane	Walter H. Schaffer	Peter John Rivera
Albert Little	Walter Jack Schafer	John Walter Rohrer, Jr.
Victor Kebely	A. D. Hammes	John Edward Saunders
Thomas M. Pettey, Jr.	J. A. Keyes	John Joseph Samoni
Edwin Merrick	R. Menapace	Henry Andrew Sharp
Elwood F. Richard	H. F. Tompson	Fred Alexander Smith
F. T. Brent	E. Hulse	Harry George White
Robert D. Lows	D. V. Snell	Francis Jerman Wilson
J. A. Zappetelli	Frank F. Thorne	Richard Harold Wollaver
Rodney J. Singer	Robert A. Aiken	George Robert Wunning
Marie Veir	Edmund Joseph Bristow	Victor Ernest Boccelli
A. W. Steinfeldt	Vard Winslow Case	Henry William Bried

~~TOP SECRET~~
~~TOP SECRET~~ENCLOSURE I (Continued)General Electric (Cont'd)

Adolph Ernest Buescher, Jr.	Stanley H. Levin
Robert Franklin Bunn	Douglas Andrew Matey
Anne Theresa Crowley	Vincent Saxton Mather
Elizabeth Joan Cairns (Brown)	John Robert McElhenney
Peter Phillip Cerussi	William R. McNay
Rowe NMI Chapman	John Joseph O'Neill
George Carmen Cordivari	Clifford T. Piontkowski
David Maxon Coville, Jr.	Elwin Foster Pearson, Jr.
Francis Elie Daigle	Thomas Jefferson Raser, III
Phillip Lynch Duncan	Richard Edwin Roberts
Frank Joseph Evan	Arthur Wirt Robinson, Jr.
George Shannon Emmons	Donald Richard Rodgers
Robert L. Francisco	Daniel NMI Rossman
Leon Lawrence Farnham	Joseph Anthony Scarcelli, Jr.
John Stephen Foley	Kenneth Norman Thompson
Cynthia Jane Frederick	Ladislaus William Warzecha
Emanuel NMI Fthenakis	
Walter J. Kinsey	
Otto Klima, Jr.	
Douglas Turner Knight	
Thomas NMI LaRossa	

~~TOP SECRET~~

ENCLOSURE I (Continued)

Autometric Corporation

- | | |
|-------------------------|----------------------|
| paul Raibourn | Alfred Y. Bentley |
| Robert Dressler | Peter R. Ramella |
| Ulrich K. Heidelauf | Bernard Ostrov |
| Harry R. Gewgrtz | Irving Cohn |
| Louis Laroche | Doris L. Rock |
| Albert A. Chesnes | Rosalie Pisano |
| Albert Jacobs | Anthony Baker |
| Everett L. Merritt | John O'Reilly |
| Philip H. Brown | Lee Waid |
| Benjamin R. Ungerleider | George L. Loelkes |
| Ruth Klaus | Carl G. Mann |
| Ina Susan Shipotofsky | Clifford J. Crandall |
| John T. Towson | Clinton Peppard |
| Mendel Halberstam | Neil Braun |
| Arthur Davis | Andrew Biache |
| Herbert Bomzer | Jerry Daniels |
| James B. Tomlinson | |
| Ellen R. Fhglan | |
| Bennett Sherman | |
| H. Robert Gribben | |

~~TOP SECRET~~

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



- Gen. O. Ritland (BMD)
- Col. Harry L. Evans (BMD)
- Col. Frederick C. E. Oder (BMD)



- Maj. Gen. C. M. McCorkle
- Mr. Richard E. Horner (SAFRD)

ITEK Corporation

- Mr. Richard Leghorn
- Mr. Walter Levison
- Mr. Duncan McDonald

Lockheed Corporation

- Courtland Gross
- Robert Gross
- Eugene Root
- Willis M. Hawkins
- James W. Plummer
- Warren D. Orr (Contracts)
- Richard G. Rave (Security)
- Frederick W. O'Green

ENCLOSURE II

ABPA

Responsibilities:

- (1) Program Management
- (2) Policy Guidance
- (3) Systems Integration

Review Board

Responsibilities:

- (1) Periodical Review of Detailed Technical Status and General Program Progress
- (2) Membership

Army
Navy
Air Force
Industry

U. S. Army Agent Area III

USAF - INO Agent Area II

General Electric Systems Manager Area III

Lockheed Systems Manager Area II

Coordination of Interface Problem Between Capsule and Vehicle

ITEK Corporation
 Design and Construction of Photographic Package

Automotive Corporation
 Ground Base Data Handling System

Corporations as currently used to handle subsystem areas for Discoverer vehicle including launch and recovery operations

TOP SECRET
SECURITY INFORMATION

TOP SECRET
SECURITY INFORMATION