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WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

August 10, 1971

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE NAVY FOR
RESEARCH AND DEVELOPMENT

SUBJECT: Deep Sea Recovery of HEXAGON Reentry Vehicle

On July 10, 1971, the third reentry vehicle from the first HEXAGON photo-satellite mission was lost in the vicinity of Hawaii due to parachute failure during descent. Based on informal discussions between elements of the NRO and the Navy staff, it is our understanding that the Trieste II will be deployed in the general vicinity of the impact area over the next few months and could probably be made available to effect recovery of the reentry vehicle if its exact location on the ocean floor can be determined.

We also understand that the services of Dr. Speis of the Scripps Institute of Oceanography could be made available to locate the RV on the bottom if NRO funding support is provided in the approximate amount of \$100K.

I would appreciate your assistance in arranging the necessary Navy and Scripps support to accomplish this salvage effort. If break-up of the RV did not occur on impact, there is a good chance that much of the imagery on the film will survive the salt water immersion. Recovery of the film would be most desirable since the imagery recorded was from a particularly productive portion of the mission. Additional information as to the nature of the parachute failure might also be obtained.

Our initial contact with the Navy has been through [redacted] (OPNAV 232). If you agree, we will proceed with further discussions with this point of contact as regards the detailed planning for the search and salvage operation.

John L. McLucas
John L. McLucas

Copies to:
[redacted] OPNAV 232
Mr. Patterson, CIA/OSP

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Unclassified



THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH AND DEVELOPMENT)
WASHINGTON, D.C. 20350

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~~HEXAGON~~

BYE 65878/71

PRO A6b

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18 August 1971

MEMORANDUM FOR DIRECTOR NATIONAL RECONNAISSANCE OFFICE
SUBJECT: Deep Sea Recovery of HEXAGON Reentry Vehicle
REFERENCE: Your Memo of 10 August 1971

1. The referenced Memo describes the loss of one of the HEXAGON reentry vehicles near Hawaii on 10 July 1971 and advises that [redacted], USN (Op-232) has been primary point of contact for preliminary discussions on recovery.

2. Navy is pleased to assist in this recovery effort.

3. Present planning for this recovery operation includes:

a. Employment of USNS DESTIEGUER, a survey ship capable of towing a search "fish" to more than 20,000 feet;

b. The services of Dr. Fred Speiss and a team of experts from the Marine Physical Laboratory Scripps Institution of Oceanography to provide the search fish and direct the search operation;

c. The use of TRIESTE II, with support ships and divers, capable of lifting the lost reentry vehicle and securing it for safe transfer to port;

d. Search operations by DESTIEGUER are now scheduled to commence about 1 October 1971 for some ten days;

e. Recovery operations by TRIESTE could commence after 5 October 1971.

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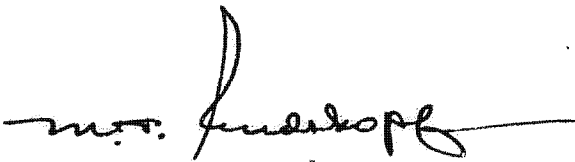
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4. The success of the operation depends upon location of the reentry vehicle, by no means a certainty. Bottom conditions are believed reasonably favorable, but the small size of the package and the accuracy of the reported sinking position make location a difficult task. Recovery can be effected if location is achieved.

5. Funding as stated in your Memorandum is probably adequate and presents no problem at this time.

6. Discussions are continuing between Mr. Patterson and Op-23 on details of the operation.

7. I shall keep you advised as planning progresses and hope that the operation can be terminated successfully.

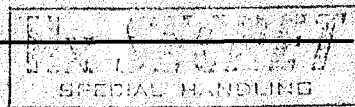

for Robert A. Frosch

Copy to:
Mr. Patterson, CIA/OSP

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PRO A 6 b

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Copy 3 of 15
28 July 1971

MEMORANDUM FOR THE RECORD

SUBJECT: RV-3 Recovery Planning Meeting

1. A meeting was held to plan the possible recovery of the third HEXAGON RV from Mission 1201. Attachment I is a list of attendees. Attachment II is the agenda.

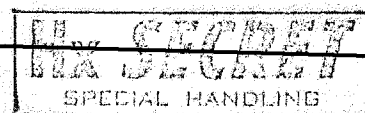
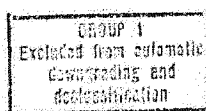
2. The Navy proposed the use of the deep submergence vehicle Trieste. At the present it is certified to a depth of 13,000 feet. A test dive is planned to 20,000 feet in August. No trouble is anticipated in demonstrating this capability. The location of the RV would first be determined prior to deploying the Trieste. The impact point must be determined as accurately as possible (action - SP-7). Based on the impact point, it is necessary to predict the sink rate and the effect of the currents on the descending RV. P.E. and McDonnell Douglas need to estimate the shape of the RV, the effective density to determine the location on the ocean floor and the terminal velocity to assess the penetration (action - P.E. and McDonnell). A good current profile of the area is available and will be supplied (action - NAVOP 03U2).

3. The Trieste will use a cable with a hook to retrieve the RV and/or take-up. P.E. and MWC are to define the potential attach points, the weight in water, and the weight in air (action - NRO and NAVOP).

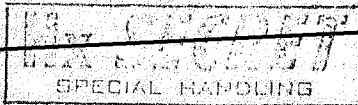
4. The RV will be located by a search team contracted for by NAVOP 03U2 with funds supplied by the NRO. The estimate for ten days of search time plus four days of travel time is \$100K. The NRO is looking into the best method of transferring the funds (action - NRO).

5. During the recovery operation, voice contact will be available with the Trieste. They will be photographing the RV using 1600 watt lights. They will hook the RV with the boom hook. Some advice

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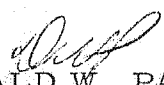
SUBJECT: RV-3 Recovery Planning Meeting

may be necessary from HEXAGON personnel. Ninety percent of the ship's crew are contract civilian personnel, so this should not be a security problem. Probably the three men in the Trieste, four divers, the film processor, and the leader of the search team will need to be cleared (action - OSP).

6. At a depth of less than 120 feet, the RV/TU will be covered with a canvas bag by the divers and transferred to the surface ship. The RV/TU will be placed in a light tight can, partially filled with water. If it is possible, an existing can will be used (action - SP-7 and OSP). Eastman Kodak, P.E., and McDonnell Douglas will determine the probable amount of damage from an analysis of the impact, update their analysis as a result of photographs, and obtain the equipment necessary to despool. The despooling will be by hand and will be a slow process. OSP will function as the contact point for the Navy and will coordinate the effort (action - OSP).

7. The search team will start modifications on 16 August and start the search on 24 August. The Trieste will recover the vehicle sometime in September. The despooling operation should plan on starting about 27 September.

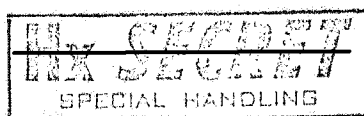
8. The consensus was that there was a good chance of recovering the RV and that the film would be usable with some small degradation.


DONALD W. PATTERSON
HEXAGON Sensor Subsystem Program Director

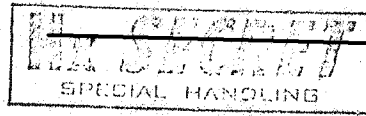
Attachments a/s stated

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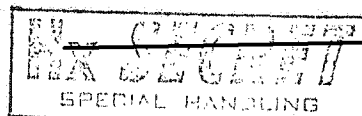


SUBJECT: RV-3 Recovery Planning Meeting

Distribution:

Cy 1 - Col. F. S. Buzard
Cy 2 -
Cy 3 - Maj. R. A. Schow, Jr.
Cy 4 - Mr. R. A. Koch
Cy 5 - Mr. M. F. Maguire
Cy 6 -
Cy 7 - 15 - Internal

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Attachment I

RV-3 RECOVERY PLAN

27 July 1971

Attendees

[Redacted]

[Redacted]

Maj. R. A. Schow, Jr.

Mr. R. A. Koch

Mr. D. H. Schoessler

[Redacted]

Mr. D. W. Patterson

Mr. D. L. Haas

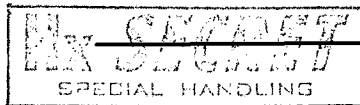
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Attachment I to
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Attachment II

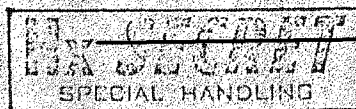
RV-3 RECOVERY PLAN

27 July 1971

Agenda

1. RE-ENTRY FOOTPRING
2. IMPACT LOADS AND DAMAGE ASSESSMENT
3. RECOVERY CONFIGURATION AND CONSTRAINTS
4. EQUIPMENT REQUIREMENTS
5. DESPOOLING AND PROCESSING
6. PAYLOAD HANDLING
7. TRANSPORTATION/LOGISTICS
8. ORGANIZATION
9. SECURITY
10. SCHEDULE
11. COST AND FUNDING

Attachment II to
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WASHINGTON, D.C.

THE NRO STAFF

3 August 1971

MEMORANDUM FOR DR. McLUCAS

SUBJECT: Possible Recovery of HEXAGON Mission 1201 RV-3

BACKGROUND

On the basis of a discussion between Dr. Naka and Mr. Duckett, CIA/OSP undertook some informal inquiries with the Navy regarding the practicability of the deep sea recovery of the third RV from mission 1201. You will recall this RV was lost due to apparent separation from its parachute.

DISCUSSION

A meeting was held at CIA on 27 July attended by representatives from the Navy, CIA SSPO, SAFSP SPO, Eastman Kodak and the NRO Staff. As a result of the discussion, the following main points were established.

a. The Navy deep submergence vehicle Trieste II will be deployed to the area of the Hawaiian Islands in August and remain on station through October. It is fully capable of recovering the RV. Since the Trieste II and its support will be already deployed, the recovery would be effected on a non-reimbursable basis.

b. Based on Navy experience, there appears to be a very good chance that an object the size of the RV can be located on the bottom. The search could be accomplished by appropriate modification of a Navy contract with Scripps Institute to provide the services of a Dr. Speis, his crew, and equipment. This effort would be on a reimbursable basis, and would require about \$100K.

c. It was the opinion of the EK representatives that the effects of salt water on the film stacks would not be severe. Apparently, initial exposure to the salt water at the edges of the film wraps causes the emulsion gelatin to swell and effectively seal the roll against further intrusion. They feel that a considerable portion of the imagery

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would be intact. Despooling would be tedious (by hand) but feasible.

d. Some additional costs may be incurred, such as special lifting gear to raise the RV (slings, hooks, nets, etc.) and the provision of a suitable container for the RV once recovered.

Additional information is contained in the CIA/OSP memo for record at TAB A.

It would be quite advantageous to recover I201-3. The third RV contained the most imagery of the four. Further, this imagery was acquired on that part of the mission when the weather was particularly favorable, especially in Western Russia and Eastern Europe. Considering the fact that Msn I202 could be significantly delayed pending solution of the parachute problem, this coverage may be critical to imagery requirements satisfaction. Physical recovery of the RV might contribute to analysis of the parachute problem, and the experience gained would be valuable in the event of future RV losses.

CONCLUSIONS

The potential gains from the recovery of RV-3 would far outweigh the moderate funding required. It is appropriate that an attempt be made. Since there has to date been no formal communication with the Navy, a suitable memorandum is in order. [] has advised that the Navy activities involved fall primarily under the purview of the ASN (R&D).

RECOMMENDATIONS

It is recommended that the Navy be requested to assist in the recovery of I201-3. A suggested memorandum to Mr. Frosch is at the right.



ROBERT A. SCHOW, JR.
Major, CE, USA

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