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17 SEP 1970

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MEMORANDUM FOR: Director, National Photographic Interpretation Center

SUBJECT : Request for Approval of Change-in-Scope to Contract

[Redacted]

FY-1971 R&D Funds

25X1

1. This memorandum requests approval for the commitment of R&D funds for a change-in-scope to Contract [Redacted]. The specific request is stated in Paragraph 7.

25X1

2. NPIC currently has a cost-plus-fixed-fee contract with [Redacted] to fabricate a Target Indexing Device (TID). This effort totals [Redacted]. The TID will provide NPIC with the capability to rapidly and automatically scan [Redacted] film and specify whether targets are cloud covered or cloud free. Furthermore, when operating in the general analysis mode, the device will permit an accurate frame-by-frame determination of the percent of cloud cover of an area.

25X1

25X1

3. The fabrication of the TID was made possible by previous NPIC research efforts in developing optical diffraction pattern technology. The diffraction patterns of images of clouds are very distinct from the diffraction patterns of non-clouded land areas, and it is upon these differences that the TID operates to distinguish clouded targets from clear targets.

During the development of the TID, an interesting phenomena was noted: using diffraction patterns, we were also able to distinguish among various types of land-use areas which were not cloud covered; e.g., deserts, mountains, plowed fields, cropland, cities, etc. This indicates that this technology might be further developed to automatically classify land-use very rapidly and on a very wide scale. There is an analogous "classification" function which is an integral part of area search for new targets or new activity in an area. This type of classification entails detection of changed land-use indicative of new activity; e.g., earth scars, excavations, rail line extensions, new access roads, new clearings (for helicopter pads), etc. These types of activity indicators are often the very first evidence of new missile sites, military construction, electronic installations, etc.

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Declass Review by NGA

GROUP 1
Excluded from automatic
downgrading and
declassification

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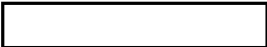
[Redacted]

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SUBJECT: Request for Approval of Change-in-Scope to Contract No.

[Redacted] with the [Redacted]
[Redacted] amounting to [Redacted] from FY-1971 R&D Funds

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25X1

4. Development of such an area-change detector would probably require a complex and expensive effort spanning several years. While this would be a high risk program, successful development of such a device would greatly aid the PI responsible for searching large areas by "pinpointing" for him those areas undergoing change. Ultimately, if confidence were established in the machine's accuracy and completeness, it could automatically search large areas for new activity.

Currently available data, however, while promising, is insufficient to support a decision to embark upon such a large development program. It is therefore desirable to obtain additional preliminary data regarding the feasibility of developing a machine that would rapidly and accurately direct the PI to areas of new man-made activity. It is proposed that the TID be utilized at the contractor's plant for a period of one month to collect such additional data. This would result in a delay in delivery of the TID from the currently scheduled date of 18 September 1970 to 23 October. It would also require additional funding of [Redacted] for a change-in-scope to the current contract. Delay in delivery of the TID will not affect its preparation for operational tests on the first [Redacted] imagery, while employment of the device on this new problem would serve as a beneficial "shakedown" exercise before final delivery in October.

25X1
25X1

5. [Redacted] is the primary contractor on the TID, [Redacted] is the only contractor that can perform the above investigation prior to delivery of the device to NFIC.

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6. The security classification will be the same as that of the original contract. The association is SECRET, the title is UNCLASSIFIED, and the work is SECRET.

7. It is requested that approval be granted for a change-in-scope to contract [Redacted] in an amount not to exceed [Redacted] and to be charged against Category IV FY-1971 R&D funds.

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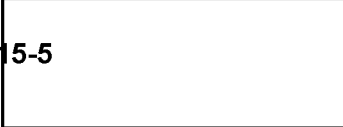
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COLONEL, USAF
Acting Chief, Technical Services Group, NFIC

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From FY-1971 R&D Funds

Attachments:

- 1. Form 2420
- 1. Proposal

APPROVED:

[Redacted Signature]

17 SEP 1970

ARTHUR C. LUNDAHL
Director

Date

National Photographic Interpretation Center

Distribution:

- Copy 1 - NPIC/CS/SCAPB (after approval)
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NPIC/TSG/RED/SRB [Redacted] (15 September 1970)

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