25X1 [redacted]

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MEMORANDUM FOR: Deputy Director of Central Intelligence

THROUGH : Executive Director-Comptroller
Director, Office of Planning, Programming & Budgeting
Deputy Director for Intelligence

SUBJECT : Approval to Contract for the Complete Design of a Scan and Search Photo Interpretation Station with the [redacted] 25X1
25X1 [redacted] at a Cost of [redacted] 25X1

1. This memorandum requests approval for the commitment of funds for an NPIC contract. The specific request is stated in Paragraph 10.

2. It is proposed that a photo interpretation station be designed which would be specifically configured for the scan and search task. It would consist of a rear projection viewer combined with a small integral light table with a microstereoscope. This configuration would allow the interpreter to search large volumes of film (monoscopically and at low to moderate magnifications) in relatively short periods of time. It would also permit him to inspect small areas of interest in stereo and at high magnification on the same roll of film. This configuration should improve the efficiency, completeness, and accuracy of the search task. This station was conceived as a result of the forecast of large volumes of film from the [redacted] it could also be modified for use with the [redacted] system. 25X1
25X1 [redacted]

3. In general, there are several accepted methods of viewing reconnaissance imagery: (1) Direct viewing with the "naked" eye, i.e., looking at film on a light table. This method is the easiest and fastest, but it offers no magnification (image enlargement) or stereo capability; (2) Direct viewing, with the use of optical aids such as simple magnifiers, stereomicroscopes and microstereoscopes. These methods offer the best quality image, the highest magnification and a stereo capability; however, they present a limited field-of-view and some of the equipment is difficult and time-consuming to use; (3) Rear Projection Viewing--where the image is projected onto a large screen. This offers a magnified, monoscopic image and is relatively efficient for searching large volumes of film. Rear projection viewers have been widely used in NPIC's scanning and searching operations because these large screen presentations allow the photo interpreter to inspect a large portion of the film at one time as opposed to the 25X1

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very small area seen through a microscope. This much larger ground area permits the utilization of contextual clues in finding and identifying targets of interest and to scan large volumes of film in relatively short periods of time. This is due to the fact that the area of the field-of-view of a rear projection viewer is as much as fourteen times that of a direct viewing microscopic system--operating at the same magnification. Furthermore, more than one person at a time can view the image should a team concept of scanning be desired.

4. The use of rear projection viewers, however, has been largely discontinued at NPIC because in recent years, increases in image quality have surpassed the optical performance capabilities of available rear projection viewers. Recently proven components and concepts, such as improved heat filtering, xenon arc lamps, rapid film loading techniques, and new optical design capabilities, now make it possible to build a rear projection system which will have better resolution, somewhat improved screen contrast, easier film loading and unloading, and better human engineering. This improved rear projection viewer, when combined with recently improved direct viewing equipment (light tables, microstereoscopes and rhomboids), will improve the overall efficiency of the scan and search operation over past and current scan and search techniques. Because of the scattering characteristics of screens, a projected image will never be as good as an image viewed directly through high quality optics; therefore, it is imperative to retain the direct viewing capability of the microscope.

Although these two instruments could be used separately, it would require either duplicate copies of the same film or the P.I. would have to remove the film from the projector and reload it onto a light table, a very tedious process.

5. The proposed Scan and Search Station is specifically configured for [redacted] (although it could be used for the KH-4 image). It would 25X1
allow the interpreter to simply and quickly load both rolls of [redacted] imagery. 25X1
He could then project from either of the rolls onto the rear projection screen and when he finds a target of interest he can simply advance the same film to an integral light table where he could then view the film either monoscopically or in stereo with a microstereoscope. The rear projection system is also being designed to accommodate the Improved Rear Projection Screen which NPIC is currently developing at [redacted] 25X1

6. The probability of success is very high for this program because it basically consists of designing the most efficient equipment configuration, utilizing existing, proven components and techniques. Many of the factors in 25X1

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this configuration are results of recommendations made by [redacted] under NPIC's Imagery Interpretation Research Program. [redacted] the selected contractor, has a proven history of success in developments of this type.

7. Sterility Code [redacted] is appropriate for this work. The Agency association with the project will be classified Confidential, but the work and project title will be Unclassified. The Project Officer will assign security classifications to the reports.

8. The program requires a six month period for completion of the engineering design at a cost of [redacted] This time period will allow a follow-on fabrication of a prototype in time for evaluation prior to the advent of the first operational [redacted] The total project cost including both design and fabrication efforts will eventually cost NPIC approximately [redacted] At the present time NPIC recommends that an allocation be made only for the design effort. This effort will produce a final design, including complete optical, electrical and mechanical configurations.

9. Although this project will concentrate on the design of a system to exploit [redacted] imagery, this design phase will also include an engineering evaluation of alternative configurations which would increase the stations flexibility by permitting the viewing [redacted] This evaluation will provide a "trade-off" analysis covering cost, technical risk, and time to complete, so that we can select only those features which prove to be cost effective. The design will then be completely reviewed at NPIC for compliance with the development objectives, at which time we will select the optimum configuration for the system. Upon the successful completion of the engineering design, NPIC will recommend that the fabrication be performed under a fixed-price contract in order to limit the Government's financial liability and to insure a high level of confidence of success on the part of the Contractor.

10. It is requested that approval be granted for negotiations with [redacted] at a level of [redacted] for the design of a Scan and Search Photo Interpretation Station from FY-1969 funds.

ARTHUR C. LUNDAHL
Director
National Photographic Interpretation Center

Attachment: (1)
[redacted] Report

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25X1 at a Cost of [redacted]

APPROVED: _____ _____
R. J. SMITH Date
Deputy Director for Intelligence

APPROVED: _____ _____
R. E. Cushman, Jr. Date
Lieutenant General, USMC
Deputy Director of Central Intelligence

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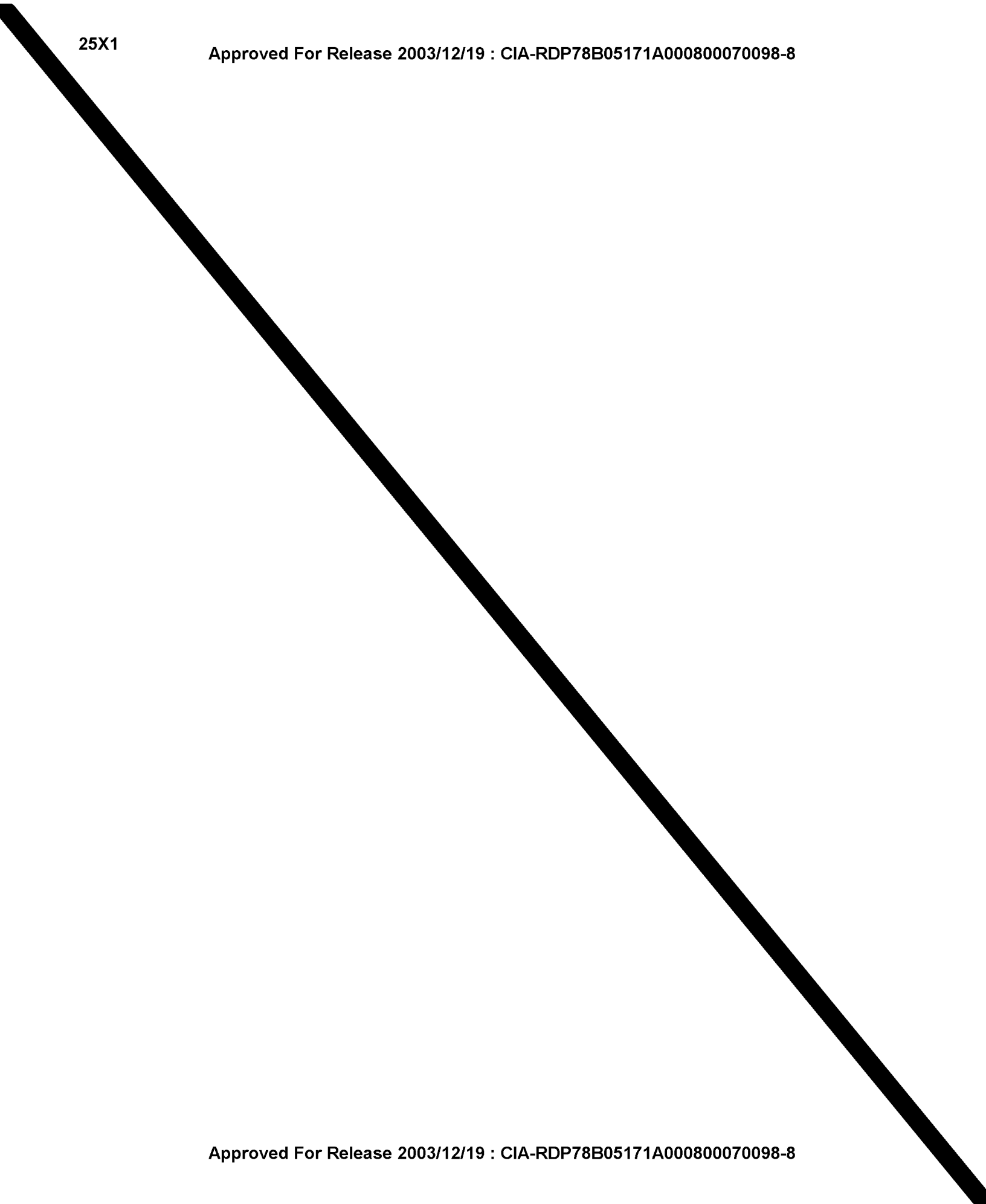

Approved For Release 2003/12/19 : CIA-RDP78B05171A000800070098-8