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DEPARTMENT OF THE ARMY  
 U.S. ARMY IMAGERY INTERPRETATION CENTER  
 FORT HOLABIRD, MARYLAND 21219

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3 MAY 1971

MEMORANDUM THRU: Chief, Technical Services Group, NPIC

FOR: Chief, Research and Engineering Division, TSG/NPIC

 SUBJECT: Request for Evaluation of   
 Ground Order of Battle Resolution Study

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1. Reference is made to NPIC Memorandum NPIC/TSG/RED-45/71 dated 6 April 1971 (SpAD Project 011256).

2. SpAD's evaluation of the technical performance aspects of the subject study is given below.

3. Test Objectives

a. The introduction to the report does not make clear whether the phrasing of the questions to be answered is that of the briefing authority, or whether it is the company's own interpretation of a general requirement. In any case, more pertinent would have been the following questions:

(1) What is the minimum ground resolution required for:

- (a) Classification of targets?
- (b) Identification of targets?
- (c) Detailed analysis of equipment?

(2) What is the effect of stereo viewing on ground resolution requirements?

4. Target Material

a. By choosing as one of the target areas the Aberdeen Proving Ground the company somewhat limited the scope of the study. This facility had been visited previously by some of the PIs who took part in the study while they were attending the Army PI school. Their ground knowledge of the targets and their familiarity with other imagery of the same targets undoubtedly led to false conclusions in the report.

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b. The report does not make clear whether Eastman Kodak injected a haze factor into the simulated small scale photography. Any simulation factor should have been taken into account.

c. Some difficulty was experienced by PIs in orienting the response sheets to the various scenes. In some instances the 45-inch resolution targets were not recognizable, even for orientation purposes. The effort required for orienting the targets with the response sheets was a time consuming and an irritating process which did not help to motivate the PIs concerned.

d. The keys provided by the company consisted entirely of ground or oblique views. No vertical cover was provided. Such photography in the case of the Aberdeen Proving Ground presumably would have been similar to that provided in the study.

#### 5. Preparation and Briefing

a. Not all the PI subjects were given the full briefing shown on pages 5-7 of the report. Most of the PIs in the stereo group were unaware that it was necessary for them to view entirely in stereo. Some, finding themselves short of time, used monoviewing to speed their progress. This factor obviously must have led to false conclusions in the final analysis. Additionally, PIs were not given the opportunity to view their response sheets as promised.

#### 6. The Report

a. The report is considered unnecessarily lengthy and, in places, overly sophisticated. Some of the referenced technical material is not readily available to the average reader and therefore has little meaning, e.g., page 8 of the report refers to "The Wilcoxon Matched-Pairs Signed-Ranks Test." This office has no knowledge of this document.

b. Most of the information contained in the many line graphs could have been condensed into a single paragraph of text, and it does not take a technician to appreciate the fact that identifying tanks is more difficult than classifying them (page 9-13).

c. Some of the line graphs do not add up correctly, e.g., in Figure 2 under GR=7", the stereo group subjects given as 20 add up only to 18.

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d. A considerable portion of the report deals with individual PI performances. Apart from being outside the scope of the study, this portion of the report probably has set forth false conclusions which have led to recommendations for refresher training. The remarks on page 42 concerning "specialty (GWS versus electronics/missile)" are also false, because by virtue of their actual task there is no reason why Ground Weapons Systems personnel should do better on OB. What is obvious, however, is that PIs who recently had attended the Army PI school did better than other PIs probably because they had had training in ground order of battle targets. Some of the civilian PIs who had training at an Air Force or a Navy PI school did not have this advantage. Rather than there being a relationship between the performance of a PI and the last time he attended a formal school of instruction, there more probably is a relationship between his performance and the type of instruction he received at the school. The conclusions regarding refresher training for PIs therefore should be disregarded at this stage.

#### 7. General Comments

a. The main outcome of the study was that figures were obtained for resolutions needed to classify and to identify ground order of battle targets. In this perspective the study may be regarded as at least partially successful. The conclusions and the recommendations regarding stereo photography, however, are suspect for the reasons given in paragraph 5 above.

b. The need for the very best possible ground resolution for detailed analysis of weapons systems should not be overlooked. There also is possibly a need to examine the effect of obliquity on identification capability at a given resolution.

c. SpAD recommends that in any future test of this nature every effort should be made to select PIs of the same background and experience to prevent striking variations in PI performances.

d. In conclusion we believe that the contractor should receive an award fee not greater than the target fee of 8%.

FOR THE COMMANDER:

Chief, Special Activities Division

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