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DEPARTMENT OF THE ARMY  
ARMY CONCEPT TEAM IN VIETNAM  
APO San Francisco 96243

AVIB-LED

19 June 1967

SUBJECT: Final Report - Tropical Combat Uniform (Ponchos and Ground-cloths) (AGL-84.4/67I and 84.3/67I)

TO: Commanding General  
United States Army Vietnam  
ATTN: AVHGC  
APO San Francisco 96307

1. REFERENCES

a. Letter, AVGC, 31 December 1965, subject: Tropical Combat Uniform, with inclosure. Summary of Proceedings of United States Army, Vietnam, Tropical Combat Uniform.

b. Letter, FOR DS SSS, 18 March 1966, subject: Tropical Combat Uniform.

c. MACV Message 45400, 13 October 1966, subject: Tropical Combat Uniform.

2. PURPOSE

Determine the acceptability, suitability, and durability of experimental lightweight ponchos and groundcloths for use in a tropical combat environment.

3. BACKGROUND

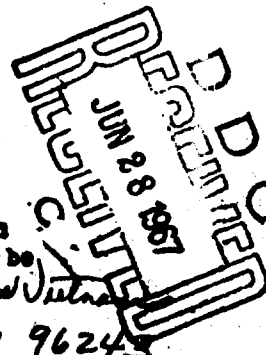
a. The summary of the Proceedings of the United States Army, Vietnam Combat Uniform Board included the following statement:

The adequacy of the present poncho was discussed. It is inadequate, being too heavy and affording no camouflage capability. The poncho is used as shelter from elements in front line fox holes; however, its shiny finish when wet is visible from

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the air and in some cases from the ground and constitutes an operational hazard. It was agreed that rather than modify the present poncho into a lightweight camouflaged item of equipment, a new water repellent lightweight camouflaged general purpose groundcloth is needed. The groundcloth should be compact, capable of being carried in a jungle trouser pocket, and have a minimum of four loops to be used in preparation of hasty shelters and hammocks.

b. The summary also included a statement regarding the efficiency of the general use of camouflage uniforms, which was in contrast with the stated requirement for a camouflaged poncho or groundcloth. "It was pointed out that tests have shown that camouflage uniforms are effective only as long as an individual remains stationary in a blending background." Other points made in the summary were: "The requirement to quickly recognize friendly troops from the air overrides the requirement to camouflage against enemy observation" and "Methods of camouflage can be applied to the OD colored uniform when camouflage is absolutely necessary."

c. Taking into consideration the contrasting requirements stated by the Tropical Combat Uniform Board, the ponchos and groundcloths designed to meet the requirements were lightweight, compact, with a dull or matte finish, but were not provided with a camouflage pattern. These prototype ponchos and groundcloths are the subject of this evaluation.

#### 4. OBJECTIVES

##### a. Objective 1 - Suitability

Determine if the lightweight ponchos and groundcloths fulfill all of the functions of the standard items of equipment which are under consideration for replacement. Determine if the new equipment designs provide any advantages other than reduced weight and bulk.

##### b. Objective 2 - Durability

Determine if the lightweight ponchos and groundcloths are sufficiently durable to justify troop issue.

##### c. Objective 3 - Acceptability

(1) Determine the acceptability of the experimental ponchos and groundcloths.

(2) Provide recommendations on desirable equipment modifications as indicated.

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(3) Determine if both items of equipment are necessary for troop issue or if one will adequately fulfill the various requirements.

## 5. DISCUSSION

a. The ponchos and groundcloths are fabricated from identical material consisting of a laminate of 1.6 ounce ripstop nylon coated with a continuous layer of Estane polyurethane. The polyurethane coating is to be worn on the outside, has a matte finish, and provides the waterproof barrier layer. The poncho, weighing 1½ pounds, is one-half the weight of the standard issue poncho, although both are identical in design. Two styles of groundcloths were provided for evaluation; both styles had the same overall dimensions. One groundcloth is merely a 6 X 8 foot cloth with reinforced eyelets at each corner and at the midpoint of each edge. The second groundcloth is identical except that a head slit is provided in the center of the cloth to permit use as a hoodless poncho. Snaps are provided to close the slit when the item is used either as a shelter or a groundcloth.

b. The ponchos and groundcloths were evaluated by platoon-sized elements of the 1st Cavalry Division (AM), the 1st Infantry Division, and the 173rd Airborne Brigade (Sep). The ponchos and groundcloths were evaluated in the field during the months of October, November, and December 1966 and January 1967. During this time all items were subjected to monsoon rains.

c. In every case, the evaluators reported the lightweight ponchos and groundcloths were acceptable items for troop issue in the Republic of Vietnam. In support of this position, the responses indicated that the lightweight ponchos and groundcloths were effective in providing protection for the individual combat soldier during wet weather conditions and were light in weight and easy to handle.

d. To arrive at a recommendation for selection of one of the three items, the project officer conducted interviews and made observations in the field. The poncho seemed to fulfill all requirements as a rain protective garment, as a groundcloth, and as a shelter. When using the poncho as a groundcloth or shelter, the troops pulled the hood drawstring to close the opening formed by the hood, which made the entire poncho area waterproof.

e. The ponchos and groundcloths were used largely in a hot-wet or cool-wet climate and in a jungle or wooded terrain. Almost all troops evaluating the ponchos and groundcloths used them on patrols and in combat operations.

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f. Most users commented on the light weight of both the ponchos and groundcloths and stated that these items were compact to carry and easy to keep dry. Some users commented that the lightweight ponchos and groundcloths made less noise than the standard issue items and that they didn't cause an individual to sweat as much. When used as a groundcloths or blankets, the lightweight ponchos and groundcloths also provided adequate warmth for the individual.

g. Two items of noteworthy interest were reported by troops evaluating the lightweight ponchos and groundcloths. Approximately 15 percent of users stated that termites ate holes in the ponchos and groundcloths. Four users also stated that insect repellent damaged the groundcloth or ponchos by "eating" away the polyurethane coating of the nylon ripstock material.

h. All units evaluating the lightweight ponchos and groundcloths reported that some items were damaged by thorns when carried on the outside of packs and fittings were torn loose by aircraft generated winds in landing zones (LZ's). It must be assumed here that troops were using the items as shelters in LZ areas. Standard issue items would also have been damaged in these instances.

i. There were no significant recommended changes to either the lightweight ponchos or the lightweight groundcloths.

## 6. FINDINGS

a. Both the lightweight ponchos and lightweight groundcloths generally fulfilled all of the functions of the standard items which they were designed to replace.

b. Both the lightweight poncho and groundcloth were desired by combat troops for issue because of the light weight and compactness. However, the poncho was suitable for all purposes, such as use as a rain garment, groundsheet, or shelter.

c. All items were durable and withstood usage in the field environment of the Republic of Vietnam.

d. Some users reported that termites ate holes in their ponchos and groundcloths and others reported that insect repellent dissolved the polyurethane coatings.

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#### 7. CONCLUSIONS

a. Both the lightweight poncho and lightweight groundcloth are desirable items for issue to US Army troops in the Republic of Vietnam.

b. The lightweight poncho fulfilled all requirements of users during the evaluation and provided adequate protection in weather conditions encountered.

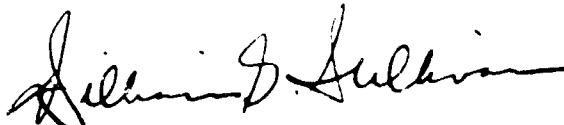
c. Material used in ponchos and groundcloths is durable, but is sometimes affected by termites and insect repellent.

#### 8. RECOMMENDATIONS

a. An investigation should be conducted to find materials which are not susceptible to damage by termites or insect repellent and which retain all other desirable qualities of the items tested.

b. If the problems posed in a. above are resolved, the lightweight poncho should be procured for issue to US Army troops operating in the Republic of Vietnam.

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Colonel, Infantry  
Commanding

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13. ABSTRACT		
<p>Lightweight ponchos and groundcloths were evaluated in Vietnam to determine suitability, durability, and acceptability for use by US troops in Vietnam. Even though fabrication material was durable it was sometimes affected by termite attack and insect repellent. If materials can be developed which will not be affected by termites and insect repellent sprays, the lightweight poncho should be procured for issue to US Army troops operating in Vietnam.</p>		

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