DEPARTMENT OF THE NAVY
COMMANDER EXPLOSIVE ORDNANCE DISPOSAL GROUP ONE
BARBERS POINT, HAWAII 96862

MEMORANDUM

Subj: Test data and analysis of 21-28 January survey trip to Kahoolawe'

Ref: (a) CINCPACLFT 102107Z NOV 79
(b) Memorandum of test data and analysis of 7-13 DEC 79 survey

1. Reference (a) directed COMEODGRUONE to prepare a plan to surface clear a specified area on Kahoolawe' Island of hazardous ordnance. Incident to the preparation of the clearance plan, an initial recon of the operation area was conducted during 7-13 December and reference (b) was submitted as a summary of the results. This report provides the results of the second survey conducted during 21-28 January.

2. Clearance Tests. Two sample areas were laid out in the OPAREA to conduct clearance tests in areas described as "poor" and "fair trafficability" in the Marinco Study.

a. In the "poor trafficability" area two tracts were laid out. The first was 234 feet by 1100 feet. This area was salted with 60 test items as shown in enclosure (1), swept with personnel at six foot intervals, and then reswept in the opposite direction. The second area was 90 feet by 1100 feet, was salted with 24 test items, swept with personnel at three foot intervals, and then reswept moving in the opposite direction from the first sweeps. The first tract had thirteen searchers on a line abreast with three rovers searching behind the line for a total of sixteen searchers. The second tract had ten searchers on a line abreast with three rovers searching behind the line for a total of thirteen searchers. In both areas one individual (not a searcher) was employed as a marker. His job was to mark the outside perimeter of the sweep line by spraying white paint on rocks or tying white plastic cloth to tree branches. The final results, after two sweeps, of the first tract are as follows:

Average time to make 1100 foot sweep - 33 minutes.

Total number of live ordnance items found - 7.

Total number of "hazardous appearing" inert items collected - 11.

Area cleared - 5.9 acres.

ATTACHMENT (2)

Clearance rate - 37 acres per man per day.

Total test items found - 43.

Overall SEP for test items - 80%.

SEP for test items larger than 20 mm - 94%.

SEP for 20 mm test items. - 75%.

The final results, after two sweeps, of the second tract are as follows:

Average time to make an 1100 foot sweep - 30 minutes.

Total number of live ordnance items found - 6.

Total number of "hazardous appearing" inert items collected - 11.

Area cleared - 2.3 acres.

Clearance rate - .70 acres/day/man.

Total test items found - 20.

Overall SEP for test items - 83%.

SEP for test items larger than 20 mm - 80%.

SEP for 20 mm test items - 81%.

This area posed serious problems, both in sweeping technique and personal safety. The terrain was hilly and broken, the ground was covered with small slippery boulders, and kiawe thickets predominated the landscape. In order to penetrate the kiawe thickets, the sweepers had to break branches and completely trample all surrounding shrubbery. Keeping the proper intervals was impossible (even the three foot interval), and marking the sweep perimeter was a best guess. The kiawe thorns penetrated and ripped clothing and skin, were a hazard to unprotected eyes, and the small football size boulders were slippery, unstable and difficult to walk upon. The most difficult problem for the sweepers was trying to look for ordnance while coping with all of the physical hazards. When this area is cleared, it would have to be at a three foot interval and special clothing, head and eye protection, gloves, and proper footwear must be provided. Even with these measures, the final SEP for these areas will be in the low eighty percent level.

b. In the "fair trafficability" area only one tract was laid out, 488 feet by 765 feet. The search line was composed of ten sweepers in line abreast at three foot intervals with three rovers searching behind the line for a total of thirteen searchers. The individual on the left of the line was utilized as a guide and did not search. The individual on the right of the line marked the sweep perimeter with white flags

planted approximately every 20 - 30 feet and did not search. The area was seeded with 105 test items as shown in enclosure (1). The final results after an initial sweep and a check sweep were as follows:

Average time to make a 765 foot sweep - 27 minutes.

Total number of live ordnance items found - 33.

Total number of "hazardous appearing" inert items collected - 123.

Area cleared - 8.6 acres.

Clearance rate - 1.25 acres per man per day.

Total test items found - 57.

Overall SEP for test items - 54%.

SEP for test items larger than 20 mm - 80%.

SEP for 20 mm test items - 46%.

This area also posed serious problems. It was a grassy area (with an occasional kiawe tree) cut by deep ravines, some more than 20 feet in depth. To sweep the area a knotted line was used, with a knot tied every three feet, and controlled by the guide and the perimeter marker. The problem foremost in everyone's mind was walking through the high grass and not being able to see the ground. All ordnance and test items located in the high grass were found by actually stepping upon them. It is highly recommended that these areas be exempt from the clearance operation or be burned off before being searched. A small grassy hummock in the Lua Makika area was burned during this survey. This "test hummock" will be monitored to see how long it will take to recover from the burn.

3. OPAREA ONE was revisited to conduct some check sweeps that were not performed during the December survey, reference (b). Three of the areas swept at 22 foot intervals and three of the areas swept at 12 foot intervals were reswept. Nothing larger than 20 mm projectiles were found and the data revealed that the 12 foot interval accomplishes better results in an area of "good trafficability".

4. To further study the theory that erosion may be a contributing factor to ordnance recontamination, two areas - one at the 22 foot interval and one at the 12 foot interval - were swept for the third time. The previous two sweeps were conducted in December. This last sweep was conducted after a heavy storm in January. A total of forty-four 20mm rounds were found. Thirty-six rounds were found in the 22 foot interval area and eight rounds were found in the 12 foot interval area. However, it was difficult to determine whether they were uncovered by erosion or washed down hill from uncleared areas above the OPAREA. The positions at which the rounds were found indicate both actions could be contributing factors to explain their presence.

5. The storm in January made sections of the road completely impassable. New detours had to be found, which took time, and they did not provide much of an improvement. As the week's work progressed and the weather cleared the road condition went from extremely muddy and slippery to hard and dusty.

6. This concludes the survey report. The data collected on this survey and the data from reference (b) will provide the basis for the subsequent clearance plan.

D. J. McANULTY

Numbers of Inert Test Items Used:

ITEM	AREA A	AREA B	AREA C
81mm Mortars	4	2	8
Minibombs	4	2	6
2.75" Rocket Heads	6	3	9
40mm AP Projectiles	2	1	2
20mm "Full up" Rounds	4	2	0
20mm Projectiles	40	14	80
Total	60	24	105

Area A = kiawe thicket, 234 feet by 1100 feet at six foot interval.

Area B = kiawe thicket, 90 feet by 1100 feet at three foot interval.

Area C = grassy area, 765 feet by 488 feet at three foot interval.