8

U. S. MARINE CORPS

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VIEQUES MILITARY TRAINING COMPLEX

VIEQUES, PUERTO RICO

STATEMENT PREPARED BY:

DIRECTOR, ATLANTIC DIVISION, NAVAL FACILITIES

ENGINEERING COMMAND, SAN JUAN BRANCH

DATE SUBMITTED:

29 FEBRUARY 1972

PART I

PROJECT DESCRIPTION

I. NAME: Vieques Military Training Complex.

II. LOCATION: The Vieques Military Training Complex comprises approximately 19,000 acres of the Island of Vieques, a Municipality of the Commonwealth of Puerto Rico, located in the Caribbean Sea some seven miles to the southeast of Puerto Rico. The Island of Vieques is approximately twenty miles long, and four miles wide at its geometric center and contains approximately 33,000 acres. See Appendix "A".

III. OPERATIONAL TRAINING REQUIREMENT:

A. The Navy Department is assigned a broad and varied role in the strategic defense of the United States. In fulfillment of this role, the U. S. Navy and U. S. Marine Corps are responsible for developing a readiness capability to:

1. Seek out and destroy enemy naval forces and suppress enemy sea commerce.

2. Gain and maintain general naval supremacy.

3. Control vital sea areas and protect vital sea lines of communication.

4. Establish and maintain local superiority (including air) in an area of naval operations.

5. Seize and defend advanced naval bases.

6. Conduct such land and air operations as may be essential to the prosecution of a naval campaign.

B. The means for fulfilling the foregoing functions has resulted in the evolution of ten areas of doctrinal operations, two of which are particularly pertinent to the Vieques Complex:

1. Strike Force Operations which comprise those actions which may result in a sudden devastating damage, destruction or netralization of an enemy. Included are all forms of weapons delivery.

2. Amphibious Operations which are defined as attacks launched from the sea to achieve a landing on a hostile shore. Amphibious warfare integrates vitually all of the types of ships, aircraft, weapons, and landing forces in a concerted military effort.

C. The ability of the Atlantic Fleet and Fleet Marine Forces to conduct essential operations is dependent upon many factors. Among these are material and technological capability, adequate doctrine, intelligence, favorable geographical deployment, adequate logistic support, and personnel who are capable of exploiting the foregoing factors. Obviously training of such personnel is an essential part of achieving an acceptable degree of readiness. Such training is conducted through various levels ranging from individual personnel training in a formalized school environment to fleet exercises which encompass the total scope of fleet operations. Inherent in training is the use of ordnance to train personnel in handling loading, fusing, arming, and delivery of it.

IV. TRAINING FACILITIES: The Vieques Complex is designed to provide complete and effective training facilities for Marine Corps Expeditionary Units, Battalion Landing Teams, Artillery Units, and other contingent forces; as well as advanced training for naval surface and air units.

The Complex is administered by the Commanding Officer, Camp Garcia, which is an operational unit of the Fleet Marine Force, Atlantic in coordination with Naval Station Roosevelt Roads. The Commanding Officer is charged with overall responsibility for the control and range safety for the Complex.

Camp Garcia, located within the Eastern Area, an austere, semi-permanent facility, including a landing field, provides administrative and logistic support to units utilizing the area for training purposes. The Camp complement is normally approximately 280 persons. During training periods this may increase to as many as 3,000 persons.

The training complex consist of three distinct areas:

a. The Western Area, located within the boundaries of the 7,200 acres Naval Ammunition Facility (Appendix "A"), provides rugged terrain suitable for small unit training in guerrilla warfare and reconnaissance. Due to its proximity to ammunition storage facilities, open firing of live or blank ammunition and the use of pyrotechnics are prohibited in this area. Use of this area must be coordianted with the Naval Station, Roosevelt Roads.

b. The Maneuver Area, located in the east-central portion of the island provides 11,000 acres of land for infantry and armor maneuvers, including amphibious landings, and eight firing ranges for weapons familiarization training in individual or crew served weapons.

c. The Impact Area, located on the eastern portion of the island, provides 4,500 acres of land and target sites for artillery, naval gunfire, and air-to-ground ordnance delivery. It is divided into an air impact and a surface impact area.

The maneuver and impact areas comprise the Eastern Area and jointly provide for integrated training in amphibious landings encompassing movement of personnel and equipment from ships to a shore objective, close air support, naval gunfire support, air-to-ground delivery, Marine infantry and armor ground maneuvers, small arms firing, crew served weapons firing, and surface to air missiles fire.

A map of the island depicting the training areas is included as Appendix "B".

V. DESCRIPTION OF TRAINING CONDUCTED:

A typical example of use of the Vieques Training Complex is the amphibious landing assault conducted by a Marine Corps Battalion Landing Team (BLT). This unit, of 800 to 1,000 men, is comprised of:

3 - Infantry Companies (150 men/company)

1 - Artillery Battery with 6 105 MM Howitzers (100 to 110 men)

1 - Tank platoon with 6 90 MM tanks

1 - 106 MM recoilless rifle platoon

1 - Landing Vehicle, Tracked platoon, with 6 to 12 LVT'S

1 - Platoon of 81 MM mortars

and supporting units.

A BLT will spend an average of three weeks operating in the Eastern training area. During this period, from two to four amphibious landings will be made on Red, Blue, and Purple Beach (Appendix "B"). Troops and equipment will be disembarked from ships, and landed ashore. While ashore, two or three exercise problems each lasting from 3 to 5 days will be

conducted. These problems involve movement of the infantry companies supported by tanks, across portions of the maneuver area to some predetermined objective.

While only blank ammunition is utilized during the field problem phase, 8-11 days of live firing in which all weapons - rifle, pistol, machine guns, grenades, tanks, artillery, recoilless rifle, and mortars - are fired, will be conducted during the three week period. This firing will utilize the eight ranges, and the impact area.

Associated with the BLT operation is naval gun fire support, and close air support usage of the impact areas. This involves gun fire, air to surface missile delivery, and strafing of targets in the area.

While ashore, the BLT will live in Bivouac areas. They will subsist on field rations, and utilize field sanitary facilities. Refuse will be disposed of in a sanitary landfill area operated by Camp Garcia personnel. Units of the BLT will occupy the barracks facilities at Camp Garcia during this time on a rotational basis.

VI. TARGET DESCRIPTIONS:

A. Impact Area.

1. The air impact and close air support zone is located within the last three miles of the eastern end of Vieques Island. Its boundaries are a line joining coordinates 559073 and 559065 on the west and coordinates 587069 and 587061 on the east. Each boundary is clearly marked by white oil drums spaced at intervals of about 15 feet. The boundaries are easily recognized from the air and must be positively identified prior to dropping

any ordnance. The terrain features are quite varied and range from flat, level ground a few feet above sea level to hills and ridge lines up to approximately 150 feet in height. This varied topography permits the greatest degree of realism in target placement. The targets consist of a mock airfield (3000' X 150') complete with thre aircraft revetments containing parked derelict aircraft, vehicle convoys, tanks, simulated SAM sites, storage areas, and personnel silhouettes. (Appendix B).

2. The surface impact area is located due west and adjacent to the air impact area. Its eastern boundary is the same as the western boundary of the air impact area. The western boundary is a line drawn between coordiantes 528044 and 528050. This area consist of rolling hills with sparse vegetation. It is used primarily for artillery training although it is available for naval gun fire and air-to-surface exercises. There is one bull's eye target for air-to-ground exercises located in this area as well as a few hard point type targets for other types of training.

3. The maneuver area comprises the remainder of the Vieques eastern training zone. Its eastern boundary is the same as the western boundary of the surface impact area. Eight ranges are located in the northern portion of the maneuver area to support live firings for small arms, machine guns, demolition, and grenades for training of ground troops. These are fixed, static ranges with all fire originating from a single point within the maneuver area which permit fall of shot in the surface and air impact areas.

The ranges included the following:

Range 1: Combat Rifle Range

Range 2: Pistol Range

Range 3: M-60 Caliber Machine Gun Range

Range 4: Hand Grenade Range

Range 4A: Flame Range

Range 4B: M-79 Grenade Launcher/Rifle Grenade Range

Range 5: 3.5 in. Rocket Launcher Range

Range 6: Demolition Range

Range 7: Direct Fire Range

Range 8: Small Arms

Range locations are shown on the map in Appendix "B". Range usage criteria and safety instructions are published in Camp Garcia Instructions, a sample of which is shown in Appendix "C".

VII. RANGE USAGE

A. Frequency:

Air-to-ground exercises at the Vieques Complex were conducted a total of 33 days during the six month period, 1 May 1971 through 31 October 1971. In addition, other training in the same period of time included two days of naval gun fire support, 33 days of small arms training, two amphibious landings exercises totaling 18 days which involved the use of tanks and artillery, and 92 days of small scale troop maneuvers.

Future levels of exercises are expected to remain essentially the same as the levels quoted above for the area taken as a whole.

B. Types of Ordnance:

All forms of conventional ordnance may be employed in training, using targets in the ground and air impact zones. The largest of these weapons, which is infrequently employed, is the MK 84 2000 pound bomb. The weight of the explsoive charge is 945 pounds.

Normally the largest ordnance used for impact in the maneuver area is the 3.5 inch rocket which is fired on one of the eight static ranges. On occasion, a nuclear detonation is simulated by exploding approximately 200 pounds of charge rigged on the ground in such a fashion to create a realistic, albeit small, characteristic mushroom cloud.

VIII. SITUATION PRIOR TO AND AFTER THE ACQUISITION BY THE U.S. GOVERNMENT OF THE LANDS IN VIEQUES

A. The following information was taken from a book entitled "The Geographic Regionsof Puerto Rico" by Rafael Pico and was published in 1950. It gives a good description of the extent of agricultural development on Vieques and the financial plight of the industry and the use that was made of the lands in the eastern area:

"12 years ago (1938) 73 farms, two large sugar cane enterprises, the Benitez Sugar Co. owner of Playa Grande Central, and Eastern Sugar Associates, controlled 75 percent of the total cultivated area of the Island."..... "Sugar cane farming dominated all agricultural activities, in spite of the scarcity and poor distribution of rainfall, the backwardness of production techniques and the continuously diminishing yields. In 1910, when 7,222 acres were harvested, they yielded only an average of 24 tons per acre. In 1935, out of 7,621 acres harvested, a yield of only 22 tons per acre was obtained. This was one of the lowest yields for all Puerto Rico, comparable only to the yields in the non irrigated lands of the Semi-arid Southern Coast Hills. In 1940 cane acreage dropped to 4,586 cuerdas and yields to 19 tons per cuerda. Of four sugar mills existing in the early twenties, only the Playa Grande Central in the Southwestern Coast, was left by 1934-35. In this year, the Playa Grande Central ground the cane from 6,121 acres of land in farms totalling 15,943 acres, most of them located in the slightly more humid section of the island"...." A few other crops were planted in Vieques. Most of them were food crops used for local consumption,

such as corn, bananas, beans, pigeon peas and cassava. Others were for export as coconuts, of which there was an area in 1935 estimated at 600 acres the largest area covered by any crop except sugar cane. After 1906 Sea Island cotton was raised; even a cotton gin was operated, but today only the ruins are left"....."Pasture covered most of the area in Vieques, about 18,000 acres of the 28,600 acres in farms. Most of the pasture land was in the eastern part where there was little cultivation. Guinea and native grasses were predominantly used. One of the difficulties encountered was the lack of water for cattle. This was remedied by building wells and small raincatchment basins. The pasture lands were used by the sugar cane farmers to graze their work-oxen, but also race horses and dairy cattle used them.

Economic conditions had deteriorated so much that the Island of Vieques had become a center of out-migration....."

B. Additional data about the agriculture situation in Vieques in the year 1940 may be summarized as follows. This information was taken from a report entitled "Vieques Island" prepared by F. A. Quiros, March 1950. The minor land owners had been borrowing money from the sugar mills, by the year 1938 almost all had their lands mortgaged to the sugar mills and the mortgages were foreclosed. All sugar cane lands were then owned by either Mr. J. Benitez or Eastern Sugar Associates. Mr. Benitez went into bankruptcy and the Bank of Nova Scotia foreclosed the mortgage and took all of Mr. Benitez's properties. In 1940 the Bank sold the properties to Mr. Juan Angel Tio from whom the Navy acquired the major part of the Vieques land. The only sugar mill in operation in the year 1940 was the

mill of Mr. Benitez. Of the 15,479 acres of the Weapons Ranges, Maneuver and Impact Area, not a single acre had been planted in sugar cane for twenty five years prior to the Navy's acquisition, it was used solely for grazing purposes, as it is being used today. The Navy acquired land, equivalent to 25,000 acres more or less, and of this area 23,177 acres were owned by only ten persons. It can be stated that 98 percent of the population of Vieques never owned land on the island.

C. Seven thousand acres of the Navy land in the weapons ranges and maneuver areas is outleased to the Cooperativa Ganaderos de Vieques for grazing of cattle at an annual rental of $6,000. In addition to the leased area, the cattle stray into the impact areas where there are an additional 8,400 acres of land. Whenever a military exercise is to be conducted the cattlemen are advised so they may round up their cattle from the areas where they may interfere with the exercises and or be possibly injured or killed. The cattlemen who represent approximately 70 percent of the population of Vieques are required to maintain all fences, cattle guards and gates that are required for holding the cattle within the outleased areas. A similar type lease is also in effect in the Navy held lands in the western part of Vieques with the same cattlemen's association in an area comprising approximately 7,190 acres at an annual rental of $6.00. That lease requires that a considerable amount of land maintenance be performed by the cattlemen's association in the vicinity of the Magazines and along the roads, in lieu of rental. A report of the U. S. Department of Agriculture, Soil Conservation Service about the oulteased grazing areas

indicates that numbers of head of cattle in the areas are excessive and should be reduced to an intensity which will maintain enough cover to protect the soil and to maintain or improve the quantity and quality of desired vegetation. The report indicates that due to the condition of the land and the scarcity of rainfall that conservative stocking, year in and year out is a must. A safe starting stocking rate of 546 animal units is recommended and as range conditions improve the number of animal units can be increased to 1224 which is considered to be the maximum number of units to graze. An animal unit is considered as 1000 lbs. liveweight, or roughly equivalent to the weight of a cow and a calf. Conservative estimates of the number of head of cattle in the eastern leased area is about 2000 head and well in excess of the recommended stocking rate of the Soil Conservation Service with the range in best possible conditions. Requests by the Navy to the Cattlemen's Association to reduce the number of head of cattle had little or no response.

D. On June 1970, the civilian labor force of Vieques was estimated at 2,311 persons. Unemployment amounted to 473 persons or 20.5 percent of the labor force. The latest census of manufacturing industries, in October 1969, registered a total of 8 manufacturing industries employing 477 persons. The average weekly payroll was reported at $63.00 with an average hourly earnings of $1.59 per hour.

The total current net income generated by the different economic activities in Vieques amounted to 4.2 million dollars in 1969, per capita income was estimated at $577.

E. There are 12 public schools in Vieques providing 70 classrooms. School enrollment amounts to 2,224 students.

There is a municipal hospital with a capacity of 21 beds. The services offered include medical and surgical treatment, hospitalization, maternity and preventive diagnostic services. Vieques is one of the few areas that have erradicated schistosomiasis (S. mansoni) which was considered completed in the year 1959. This disease is still prevalent in the mainland of Puerto Rico.

F. Vieques has a small airport where air taxi service is available to and from Culebra and San Juan Puerto Rico. In addition, there is a surface ferry service between Vieques and Fajardo Puerto Rico, the service is for passengers and general cargo.

There are approximately 1,200 civilian vehicles on Vieques, of which 900 are passenger sedans and the remainder is made up of station wagons and two axle light trucks. The main roads are typical rural type, single lane in each direction, and hard surfaced. The estimated cost for improving the road system of about 25 to 30 miles to meet current and foreseeable requirements, is $3,000.000.

G. The report prepared by President Nixon's Inter Agency Economic Adjustment Committee's team as a result of their visit in August 1971 indicates that the Navy authorized 80 new operation and maintenance jobs at the Naval Ammunition Depot Vieques. Authorization of 40 to 50 new jobs at Camp Garcia is being processed by the Marine Corps. This is in response to the request of the Commonwealth Government for such assistance as may

be possible to help relieve the unemployment situation and the burden carried by the Commonwealth in support of the municipality of Vieques, where approximately 80 percent of the land is under Navy control.

IX. PHYSICAL FEATURES VIEQUES (CAMP GARCIA)

A. Vieques encompasses an area of approximately 51.72 square miles, or 33,000 acres and had a population of 7,817 persons at the time of the 1970 census, which represents an increase of 8.4% over the 7,210 persons included in the 1960 census. However, over a period of fifty years there has been a decrease in population, with 11,651 persons included in the 1920 census.

B. Appendix "B" is a copy of the map "Combat Chart Isla de Vieques" Eastern Part, prepared by the U. S. Naval Oceanographic Office and provides considerable detailed information about the terrain such as beaches, mangrove, off shore reefs, shore lagoons, and swamp areas.

C. A search was made of the libraries at the U. S. Forest Service and the Agricultural Experimental Station,both at Rio Piedras, P. R., but no specific articles or descriptions could be found that describe the flora and fauna of Vieques. The eastern end of Vieques is quite similar in appearance, rainfall and terrain to Culebra. The island of Culebra has recently been studied for its natural resources, development potential and socio-economic aspects and is reported in the publication "An Island in Transition Culebra 1970". That publication was prepared by the Environmental Quality Board of the Commonwealth and contains much information about flora and fauna that is considered to be applicable to Vieques. In the report entitled "Soils of the Island of Vieques by M. A. Lugo-Lopez, J. A. Bonnet and Jean Garcia in Bulletin #108 of March 1953, University of Puerto Rico Agricultural

Experimental Station, the vegetation was briefly described as cacti, seagrapes, coconuts, mangroves, yerba de zorra and guinea grass. A recent study of the U. S. Soil Conservation Service indicated that the guinea grass which has been the grass to be managed for grazing, has disappeared in some sites and that Angleton grass (Andropogon annulatus) has replaced the guinea grass at those sites.

D. The weapons ranges are located on the eastern half of the Island of Vieques which is generally classified as a "life zone" equivalent to "subtropical dry forest". It is one of the driest of the six types of life zone which can be found in Puerto Rico. The mean annual recorded rainfall in the western part of Vieques, in the vicinity of Esperanza, during the years 1965-1969, was about 40 inches, with decreasing amounts eastwardly towards the weapons ranges and impact area. The easterly most point is estimated to have an annual rainfall of less than 25 inches. The higher rainfall in the western section is attributed to the higher terrain and the effect of Mt. Pirata on the moisture ladened clouds. Mt. Pirata has an elevation of 301 meters above sea level. This western area is classified as "life zone", "subtropical moist forest".

The following excerpts are taken from a recent study (to be published in approximately two months), prepared by Jacob L. Whitmore, Research Forester Institute of Tropical Forestry, U. S. Forest Service. "The vegetation in this life zone tends to form a complete ground cover, but is mainly deciduous on most soils. Palms

are usually absent from the canopy, leaves are often small and sclerophyllous, species with spine are common. Tree heights usually do not exceed 15 meters and crowns are typically broad, spreading and flattened, with sparse foliage. Fire is common on the better soils where the vegetation, especially second-growth, tends to include many grasses, and high amount of organic debris accumulates on the soil during the dry season. On the poorer soils, however, the vegetation is more limited and organic debris does not accumulate to the extent that surface fires are a common occurrence".---------"Agriculture in subtropical dry forest is a marginal business, except under irrigation. The amounts of water which must be added in order to maintain crops and pastures are minimal, however, and the better soils in this life zone are under cultivation".........."Species which are easily recognized and which, when taken as a group, are useful indications of this life zone in Puerto Rico and the Virgin Islands include Bursera simaruba, Prosopis juliflora, Pilocereus royenii, Cephalocereus royenii, Pictetia aculeata, Bucida buceras, Guaiacum offinale, and G. sanctum, Leucaena glaucea, Tamarindus indicus and Pithecellobium dulce."

E. Water supplies in Vieques are very limited. The following description is taken from Water Resources Bulletin No. 4, Water Resources of Puerto Rico, prepared by U. S. Geological Survey in cooperation with the Commonwealth of Puerto Rico and is dated 1964.

"The unconsolidated deposits of Quaternary age are the only rocks in Isla Vieques that will yield more than a few gallons per minute to

wells..... The rainfall in Vieques increases from east to west, thus the available recharge is greater in the central and western end of the island than in the eastern end..... Eighteen of the 24 wells in use, tap the unconsolidated deposits in the areas mentioned above, and they account for more than 95 percent of the water pumped on the island. The average daily pumpage on Vieques probably does not exceed 300,000 gallons, and more than two-thirds of the pumpage is for civilian and military public supply. Some of the wells yield brackish water, and others which usually yield fresh water, are reported to yield slightly brackish water when pumped steadily during extended dry periods."

The U. S. Department of Agriculture, Soil Conservation Service, completed a report in January 1972 entitled "Vieques Island Preliminary Report of Reservoir Sites for Water Supplies". In that report 24 reservoir sites were selected for study. All but ten sites were dropped because of their small size. Later five sites were selected from the ten for field study, one of those was discarded due to poor storage capabilities. Some of the problems pointed out in the report are the scarcity of enough earth to build the dams, small drainage areas, very high seepage rates and evaporation. The proposed dams could be used for municipal or industrial water supplies and or limited irrigation use. One of the proposed better dam sites is in the Maneuver area and has a good storage capability but a small drainage area, and due to the fact it is in the eastern part of the island has less rainfall than the other proposed sites.

PART II

ENVIRONMENTAL IMPACT

I. The weapons ranges, impact and maneuver areas, will be discussed in general and separately for the environmental impact on each.

A. General:

Prior to the holding of military training exercises at Camp Garcia advance planning meetings are held between the military staff of Camp Garcia and the corresponding planning staffs of the units to be trained. The scope and characteristics of the proposed operations are carefully studied and scheduled. The range and maneuver area capabilities and limitations are discussed and the rules and regulations for their use as well as communication requirements are set. Appendix "C" is a sample of the Safety and other regulations governing the use of the training facilities. Planning discussions also include considerations that may affect possible destruction of flora and fauna, as well as cattle, topography of the area, and any possible damage to beaches at landing points.

The weapons ranges including the impact and maneuver areas are described in general terms under various paragraphs and sections of the publication "Draft of Environmental Impact Statement Atlantic Fleet Weapons Range (Inner Range)". A portion of that document dealing with the shock wave and air blast wave (over pressure), created by the largest bomb used, the 2000 pound MK84, states that the earth shock wave cannot be felt at Isabel Segunda, the principal town development of Vieques, due to the nine mile distance separating the town and the impact area. The report does indicate that the

noise of the largest bombs would be heard at Isabel Segunda. Except for the bombs mentioned above, shock waves or sound from other firing on the Camp Garcia ranges, cannot be heard at Isabel Segunda.

Within the weapons ranges, maneuver and impact areas, there are no known natural resources of economic significance, such as deposits of minerals, surface or subsurface water supplies, harvestable timber, or vegetation. There are no wilderness or wild areas, national recreational areas or preservation of natural areas per se, located within the areas under consideration. The adjacent water areas, which are generally unaffected by the land operations of the exercises, do contain extensive reefs, fish and fishing activities. The National Register of Historic Places has been consulted and no National Register properties are affected by the training exercises at Vieques.

There are no construction nor land acquisition requirements involved with the present continued use of the ranges on Vieques except for the sewage treatment plant which is to serve Camp Garcia, including personnel permanently assigned as well as field troops under training, and to be placed under construction during calendar year 1972. Also, there is pending the possible need for maintenance dredging of Bahia de la Chiva, to improve the sea approach to Blue Beach, which is one of the areas where troops and equipment are landed during the exercises.

Except for periods of exercises the shore lines of the training areas are open for fishing. The quantity and value of fish and shell fish reported for both Culebra and Vieques during the year 1969 are included on Appendix "D" attached. From the appendix it may be noted that both in quantity and species the catch at Vieques is considerably greater than at Culebra.

The present utilization of the maneuver, ranges and impact areas for military training and the grazing of cattle on Vieques probably constitutes one of the few areas in Puerto Rico where human activities are permitting the area conditions to return to the natural balances and habitats for wild life and vegetation. Regulations governing the use of the ranges and maneuver areas prohibit the cutting, scarring or marking of trees. Tree branches are not to be used for fuel or camouflage. Track vehicle roads will be utilized where marked, and such vehicles are not permitted to cross bridges in the maneuver area. The vehicular traffic is handled by the existing improved dirt roadways where cattle gates are located for controlling the grazing areas and movements of the cattle. The solid wastes generated during training exercises such as fibers, packing materials, boxes, wire lines, ammunition brass, containers and food wastes are carefully collected following each exercise and delivered to a sanitary fill disposal area. Civilian access to the areas during the exercise periods is restricted as a safety factor. Public notice is given to the Mayor of Vieques listing the exercise periods, then he makes further distribution of the notices to the cattlemen, fishermen and others who ordinarily may be expected to be in the vicinity of the exercise area. The cattlemen are given the opportunity to move their cattle and to round up strays. The control of the grazing of cattle is practicable but not necessarily acceptable to the cattlemen's association who are endeavoring to produce as much marketable meat as possible. The enforcement of controls, on the number of cattle to be grazed and the restricted areas for grazing, is difficult for whomever shall be entrusted with the function as periodic round ups are not made by the

cattlemen. A relatively small number of claims have been submitted by the cattlemen to the Government for animals killed in the maneuver and impact areas. The Commanding Officer of Camp Garcia reviews each such claim and processes it with his recommendations to higher headquarters.

B. Ranges:

Range No. 1:

On this range, controlled groups of military personnel obtain experience and training in the firing of such weapons as M-1 and M-14 rifles, M-1 and M-2 carbines, Browning automatic rifles and 45 caliber submachine guns. Service ammunition is provided for firing.

The range is located in rolling terrain with the flanks higher than the main firing space. The terrain has a grass, and scrub brush cover, no trees are present. The direction of fire is from south to north with the possibility that some rounds may land in the water. The Range Safety Officer, during scheduled firing periods continuously surveys the adjacent water areas for any boats that may have entered the area, in violation of the warning notices which are issued in advance of firing, and if any are found, the range is closed until the boat departs the area.

An inspection of this range made on 16 February 1972 did not reveal that any appreciable visable impact has occurred to the terrain, vegetation or wild life in the vicinity. Except for the right and left flank markers, targets and firing positions there were no other visible indicators as to the use or purpose made of the ground area.

After each firing period,all live ammunition, shell casings and debris is collected and removed from the range for disposal elsewhere.

Range No. 2:

On this range, controlled groups of military personnel obtain experience and training in the use of the service pistol, by firing at targets located at fifteen and twenty-five yards. This range is located adjacent to Range No. 1, and firing is from southwest to northeast. Firing is towards a rolling area and spent rounds fall into the earth and would not reach the beach area. The range is covered with grass and low scrub brush.

An inspection of the range made on 16 February 1972 did not reveal that any appreciable visible impact has occurred to the terrain, vegetation or wild life in the vicinity. The right and left flank markers, targets and firing positions are the only visible things that relate back to the use as a firing range.

Range No. 3:

On this range machine guns and Browning automatic rifles are fired at fixed targets consisting of parts of old military vehicles, and natural promontories such as rock out-croppings. Firing is from south to north with the possibility of rounds travelling on into the surrounding beach area and marine environment. This range is also located in rolling land with the flanks higher than the target area.

The Range Safety Officer continuously surveys the adjacent water areas for the presence of any boats that may have entered within firing distance. Should such craft be sighted the range is closed until the area is again clear. Boats that may be in the area, but not visible to the Range Safety Officer would not likely be in danger due to the shadow effect

of the terrain acting as a shield, with the rounds either entering the earth or passing in a trajectory above the boat.

In the immediate areas of the targets, it was observed on 16 February 1972 that, the earth has been scarred from the projectiles . the green vegetation was absent and the adjacent area is pock marked. However, during non-use periods the green vegetation growth will quickly cover over the scarred areas. Due to the shape of the terrain, any erosion or run off from the uncovered earth areas would tend to flow back towards the firing line, thus minimizing any possible silting of the beach area or adjacent marine environment.

With the normal direction of the wind, from the sea towards the land, the winds normally would carry any dust, smoke or powder combustion products towards the firing line, thus lessening the possibilities of affecting the beach areas and marine environment.

Range No. 4:

On this range fragmentation hand grenades are fired from a control pit, seaward, towards the target area. The target area is a trench like opening in the ground with some empty steel drums imbeded into the sides of the trench. The active target area is approximately 100 feet in length and at a lower elevation than the firing pit.

The earth in the target area is generally soft from the explosive discharges and dust cones that are forced upward and then fall back towards the earth. The natural contour of the land to the west of the target area rises sharply and acts somewhat as a barrier to the wind carried dirt ladened air, following each explosion. The vegetative cover in the target area

is normal in appearance to the surroundings and has not suffered appreciably from the grenade fragments.

At the time of the inspection of the area there were no signs of erosion of the soil and the vegetative cover was more profuse than as was found in the areas of Ranges 1 - 3 inclusive. The area is somewhat more protected from the salt ladened off shore breezes which probably accounts for the better vegetative growth.

All duds are detonated after each exercise by the Explosive Ordnance demolition personnel.

Range No. 4A:

On this range flame thrower equipment is authorized for use but apparently is seldom used. There were no indications of permanent damage to the terrain or vegetative cover. The area of this range is relatively close to the beach and the scarcity of vegetative cover is probably more closely related to the effects of the salt laden air than to the use as a weapons range.

There was no evidence of fuel spills or ground penetration of combustible liquids. Any damage that may have occurred in the past due to weapons testing has been apparently obliterated by natural forces that may have been at work.

Range No. 4B:

On this range 40 MM rifle grenades are fired in a seaward direction into an area adjacent to the beach. The natural rolling terrain and elevated area to the west provide a protective barrier between this and the adjacent range as well as the beach area.

As noted previously, the paucity of vegetative cover is probably more closely related to the effects of the salt laden sea air than to the use as a range. The area is made up more or less of dunes which have been built up over a long period of time. The energy released by the detonation of the grenades is absorbed by the sand like terrain. Due to the wind and sand movements the area tends to self level, erasing craters or unevenness.

The duds that may remain after each exercise are identified by location and disposed of by detonation.

Range No. 5:

On this range 3.5 rocket launchers are fired in a seaward direction into a dune area adjacent to the beach. This area is also wind swept by salt laden air and has a relatively sparse vegetative cover. There is very little evidence of soil displacement resulting from the explosive energy of the rockets fired, as the projectiles penetrate sandy terrain.

Range No. 6:

On this range shaped charges are exploded. The size of the charges do not exceed 4o pounds. This range is located on the beach above the high water mark. No explosives are used in the submerged areas of the beach. The depressionsin the sand resulting from the explosives are visible and somewhat resemble areas where small quantities of sand removal has taken place. The grass and vine type vegetative cover on this section of beach appears to be quite abundant and vigorous and has helped control the possible beach erosion. This section of beach is well protected by an

extensive reef which runs parallel to the beach for a considerable distance on each side of the range. The explosives used on the range should not cause any shock wave and or over pressures that would harm fish or other inhabitants of the adjacent waters.

Range No. 7:

This range is utilized by Tanks, Ontos, 106 Rocoiless Rifles, Artillery and 50 caliber machine guns. This firing is generally in an eastwardly direction into the Surface Impact Area. Comments on Surface Impact Area apply.

Range No. 8:

This range is located in low hilly areas adjacent to mangrove growth and to Ensenada Honda on the southeast sector of the Maneuver Area.

This range is used by groups for frontal assaults by squad or platoon sized units only. Weapons used include M-1 and M-14 rifles, M-1 and M-2 carbines, Browning Automatic Rifles, Service Pistols and 45 Caliber Sub-Machine guns all of which fire service ammunitions.

To help simulate actual combat conditions, demolition charges equivalent to one fourth of a pound are placed in the range area and exploded.

The effects of the rounds fired on the vegetation, earth and general ambient is minimal. Spent rounds do reach the mangrove growth but very little damage can be noted. There is very little evidence of erosion and sedimentation in the adjacent mangrove growth.

C. Surface Impact Area

There is one bull's eye target used for inert ordnance and hard point targets are set in from time to time in the impact area for explosive ordnance. The area is also available for other types of training, for air to ground exercises as well as naval gun practice. Aerial and naval gunfire is directed from South to North to the impact area. The westernmost part of the impact area is rather hilly and covered with scrub growth and thorny type trees reaching a height of four to five meters. The flatter part of the area, towards the east, is the generally used impact area, and the scrub growth is considerably less in height. The principal range control and observation posts are located at OP-7 and OP-9 in the northeast sector of the maneuver area. Aerial photographs of the area show the crater effects on the ground surface caused by the explosive impacts and also show the rather rapid recovery of the vegetation in the crater area. Cratering is not as extensive as in the Aerial Impact Area due to the relatively smaller size of ordnance that is used. See Appendix "E". The effects of the explosive impacts and weapon case fragments on the surroundings undoubtedly do damage to birds, small animal life such as lizards, and mongoose, and will cut shrubs and brush. Some air pollution is created by the explosives upon impact of the rounds and the soil that is blown upwards. Brush fires will occur as a result of the explosives and will generally burn out by themselves without involving large acreage. The smoke from the fires is blown seaward by the prevailing breezes and does not reach the civilian community. Fragments from the exploded ordnance and some unexploded ordnance (duds) will be present on the ground, or buried in the ground or within the

cored crater areas. In the case of firing from ships or aircraft there is also the possiblity that some damage may be done to the shore line and immediate beach/water areas from rounds that may be long or short of the targets. However, this is considered to be very minimal due to the relatively large area provided for the impact of rounds. Such rounds that would explode in the maritime area would cause damage to fish, shell fish and benthic communities in the immediate area. Also there may be some damage caused by chemical compounds released in the water from the exploding ordnance.

The use of the impact area produces noise from the weapons, explosion of ordnance and noises both from propeller and jet sub sonic types aircraft. Large aerial ordnance is not used in the surface impact area; therefore, noises are rarely heard at Isabel Segunda. Some aircraft noise may be heard in the civilian community as the aircraft approach and depart from the training areas. The safety of the residents of Vieques is not endangered by the use of the areas due to the restrictive flight patterns for aircraft and physical distances separating the training areas from the civilian community.

Unexploded ordnance does accumulate in the impact area, and periodically, special Explosive Ordnance Demolition Teams sweep the areas to clear out the duds.

A practice exercise was witnessed on 16 February 1972 from OP-7 in the maneuver area. The exercise included the firing of aerial rockets and straffing by fixed wing propeller aircraft, straffing by gunships, and the firing of 105 MM Howitzer and 81 MM Mortars by ground forces. The magnitudes of noise, air pollution and explosive forces that were sensed were not great, due to the physical separation of approximately one mile between the observation point and impact area. Clouds

dirt and explosive gases did rise off the ground, but soon disappeared. There was no apparent excitation of bird life in the area, and five or six head of stray cattle were seen moving in file just east of the target and did not appear to be panicky as a result of the high level of noise. After the exercise was completed, small brush fire areas were observed, and they seemed to extinguish themselves quite readily. The brush fire seemed to have originated in the area that was hit by the aerial rockets rather than the other types of ordnance that were fired.

D. Maneuver Area

With the exception of the areas set aside for firing ranges and camp facilities, the entire 11,000 acres of the maneuver area is available for infantry and armor training. Heavy tracked vehicles, rubber tired vehicles, and troops are free to traverse all portions of the maneuver area without regard to established roads and trails. Cutting of shrubs and foliage for bivouac clearance or camouflage, however, is prohibited. (Annex C)

The use of explosive ordnance in the maneuver area is confined to the firing ranges for grenades, rifle grenades, and demolition charges. All other explosive ordnance used is fired for impact on either the surface or air impact areas.

Troops establish bivouac areas during exercises in the maneuver area. The area along the shore line near Purple Beach is frequently used for this purpose. Sanitary facilities associated with the bivouac site consist of individual pit latrines. Refuse is collected at central points in the bivouac area and disposed of in a sanitary land fill operated by Camp Garcia personnel. Shell casings from firing positions are recovered and returned to the Ammunition Dump.

Potential damage to the environment could result in these operations in the following areas:

1. Destruction of ground cover and subsequent erosion resulting from passage of tanks, tracked landing vehicles, and personnel.
2. Littering by personnel using the area.
3. Contamination due to limitation of field sanitary facilities.
4. Destruction of bird and animal life and habitats.

Close observations were made during a period in which some 1,600 personnel were using the maneuver area. The troops had been in the area approximately two days prior to the field inspection. Surprisingly, other than the fact that personnel and equipment were sighted, there was little evidence of their traverse through the area. Only minor disturbances of ground cover by tanks was noted. No old tank tracks were visible. The bivouac area was clean and orderly. No trash was apparent, and no noxious odors from latrines were present. Bird and animal life were visible. A portion of the maneuver area is used for cattle grazing purposes, and cattle were readily evident. Land erosion was minimal, and occurred only where dirt roads had been cut to provide access to ranges and target sites. These areas were not adjacent to streams or the ocean, hence soil transported by rainwater runoff would not cause silting of waterways.

In general, little damage to the land was evidenced.

E. Air Impact Area:

The air impact area, located within the last three miles of the eastern end of Vieques, contains over 25 target facilities for aerial bombardment and strafing purposes. Targets include a mock airstrip, aircraft revetments, a motor pool, ammunition dumps, missile sites, and vehicle convoys. (Appendix "B").

All forms of conventional air delivered ordnance, including air-to-ground rockets, bombs up to 2000 pounds, and napalm are employed on targets in this area. In addition, the area is also used for naval gun fire support and artillery practice. The largest weapons used in NGFS are 8 inch naval guns.

Because of the types of weapons used, this area is subject to greater potential environmental damage than the other portions of the Vieques Complex.

Limited access to the area prevents close observation of operational effects on the terrain and surrounding waters. Potential environmental damage would,however, include the following:

1. Human and animal hazard from unexploded or "dud"ordnance.

2. Damage to bird, animal, and marine life and habitats from the explosive effects of ordnance.

3. Damage to ground cover from explosions and fires initiated by ordnance delivery.

4. Ground erosion where cratering and destruction of ground cover have taken palce.

5. Noise pollution.

6. Air pollution from dust, fires, and gases from explosions.

Review of aerial photographs of the area indicate vegetation has been destroyed around the target complex, and extensive cratering exists. Vegetation destruction is a temporary effect, and restoration of ground cover takes place during periods of non-use. Since rainfall in this portion of the island is less than 25 inches per year, such restoration is slower than in other areas.

While the noise associated with the explosion of a large weapon is extremely loud, the distance from the point of impact to civilian residential areas is such that it does not present a major problem.

Dust and gases created by the impact and explosion would normally be carried to sea and would rapidly precipitate or dissipate.

Some damage to bird, animal and marine life must be anticiapted. The exact nature of this damage, and the quantitative effect, cannot be determined without extensive studies.

While unexploded ordnance is frequently cleared from the area, some rounds bury themselves to such a depth that they cannot be readily removed. Future use of this area for other purposes will require an extensive ordnance disposal effort.

E. Landing Beaches:

Amphibious landings are conducted over Blue, Red, Yellow and Purple beaches (Appendix "B"), with the majority of the landing taking place on Blue and Red beaches. Men and equipment are landed by means of landing craft and amphibious tracked vehicles. Large quantities of ammunition, stores, artillery, tanks, and associated equipment are put ashore at the landing site during a given exercise. While tracked vehicles can usually move readily through the beach sand, occasionally they and other vehicles are stuck, and must be towed out.

Potential damage to the environment could result in these operations in the following ways:

1. Damage to submerged reefs traversed by tracked landing vehicles.
2. Destruction of mangrove areas bordering beaches.

3. Oil spills resulting from the fuel transfer operations.

4. Beach erosion caused by tracked and rubber tired vehicles.

5. Littering by personnel using the area.

Observations of landing operations, and a review of landing areas indicate that damage to the environment is minimal. The landing zones are not obstructed by reefs, hence damage to reefs is not a consideration. There are no mangroves in the areas where landings are conducted, and the adjacent mangroves appear to be undisturbed. Fuel is brought in by barge to a concrete ramp constructed near Blue beach, and transferred via pipeline to the fuel storage area. While no refueling operation was underway, an examination of the fuel transfer area showed no evidence of fuel spills on the concrete, or surrounding rocks.

There was evidence of vehicle tracks on the Blue beach landing area. Shallow depressions of 6" to 12" were visible where some equipment had become stuck. However, wind and wave action appeared to be rapidly restoring the beach area. Beach grasses were evident above the high water mark and appeared to provide ground cover despite passage of equipment and men.

The beaches were remarkably neat and clean, and generally in better condition than the public recreational beach areas in Puerto Rico.

PART III

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD RANGE USE CONTINUE

1. The unavoidable adverse environmental effects for environmental impact will be discussed for the weapons ranges, maneuver and impact areas and landing beaches.

A. Weapons Ranges:

Minor damage will continue to the vegetative ground cover and soil erosion problems can result from the scarred terrain. The terrain will continue to receive the effect from the detonations of grenades, and the fragmentation of metal parts. Some unexploded (dud) ordnance residuals may occur, becoming a hazard to man and animal. Some spent ordnance may reach the beach areas where it will eventually deteriorate, give off chemical compounds and possibly be washed up at other sites.

Except for the problem of dud removal, the adverse environmental effect of use of the weapons rangesappear to be minor.

B. Maneuver Areas:

Minor damage will continue to the vegetation ground cover, trees, and soil erosion problems can result from the passage of heavy tracked vehicles and personnel over the unimproved trails.

Destruction to bird and small animal life and habitats will continue.

Solid wastes generated by field forces and the disposal of personnel sanitary wastes could become health hazards if they both are not properly controlled.

Usage of the maneuver area at current levels, continued enforcement of sanitary regulations, and prohibition of tree destruction, will mean that environmental damage will be held to a minimum, and that no long term effect will occur.

C. Impact Area:

Damage will continue such as craterization, creation of camouflets, and scoring of the terrain both in the surface and air impact areas. The areas will become littered with fragments of exploded ordnance, unexploded ordnance will also be visible or possibly buried in the terrain. Rounds which were long or short in reaching the impact areas will possibly fall into the beach and maritime zones and cause damage to fish and shell life and the benthic populations, from explosive effects and chemical decomposition. High noise levels will continue when heavy ordnance type weapons and aircraft are in use.

D. Landing Beaches:

The surfaces of landing beaches and the related dunes will be affected by the heavy tracked and tired vehicles which will come ashore and or be utilized in handling all types of cargo landed from craft. The principal damage will occur from beach erosion, and destruction of vegetative cover of beaches and dunes.

Amphibious craft/vehicles may strike or become grounded on reefs and coral formation which can cause considerable damage to the related eco systems.

There is also the possibility that fuel and other hazardous

liquids and materials may be spilled in the water and beach areas causing damage to the marine environments including mangrove and swamp areas of the maritime zone. Likewise, solid wastes may litter the environment. Continued care in use of the area, as is currently practiced, will minimize the adverse effects.

2. The use of the ranges, maneuver and impact areas and landing beaches at Vieques produce high local noise levels, some air pollution, and damage to vegetative cover, birds and small animals. However, the safety of the civilian population of Vieques is not endangered due to physical separation of the training areas and safety control that are in effect during the training exercises.

PART IV

ALTERNATIVE TO PROPOSED ACTIONS

1. The alternatives are discussed for the weapons ranges, maneuver and impact areas and landing beaches. These alternatives are not considered to be the only ones available but are those most readily apparent.

A. Utilize the land for cattle grazing which is the highest possible current use that could be made of the land in the agricultural area. This is currently the use made of the land in coexistence with the training operations.

If additional water could be made available, possibly the land could be put to better agricultural usage, such as cultivation of food crops.

B. If the development of tourism is considered a better possibility for the use of the area, a good dependable water supply source would be required together with all the necessary community support elements. However, the impact areas would be hazardous until all dud ordnance could be removed and or sufficient time would have passed until it could be considered as inert and inoffensive.

C. Either of the alternatives above may result in greater damage to the existing eco systems due to a higher density of population, both man and animal, and the use of the available assets at a greater rate than at which they can be replaced.

PART V

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

1. The use of the training areas over the past 30 years by military units does not appear to have caused damage which cannot be repaired by nature in a fairly reasonable time. Ground cover vegetation is now more profuse than when it was originally taken over by the Navy as the larger shrubs and trees are growth that has taken place within a reasonable short period of time. In discussions with personnel of the Agricultural Experimental Station, of the University of Puerto Rico, it is their opinion that the land has in effect been pretty much turned back to nature and the damage during the Navy's ownership has been less than if the lands had remained in the condition when taken over. Due to the relatively low usage in terms of days per year of the areas for training, the natural forces have been effective in restoring vegetative cover and at the same time in providing food for a relatively large number of cattle.

Unfortunately, at this time, there is not available a comprehensive study to indicate the kinds and quantity of flora and fauna inhabiting the training areas, but it is believed that when such a study is made, the results will show that there is a high number of nesting colonies of birds, and species of birds and vegetation that are quite uncommonly found on the mainland of Puerto Rico

The training areas also offer possibilities for forestry development and the U. S. Forest Service has indicated some interest in starting some experimental plantings.

Continuous use of the impact areas may result in creating an extremely hazardous condition due to the quantities of unexploded ordnance. The removal and or detonation of the materials may become impracticable either from the standpoints of safety or economics. The Navy and Marine Corps conduct periodic sweeps of the Surface and Air Impact Areas for unexploded ordnance.

PART VI

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

I. Irreversible and irretrievable commitments of natural resources are:

A. Soils: The detonations of explosives above or below the surface of the Vieques target areas result in the destruction of ground cover, the pulverization of soil, and the creation of dust. These dust particles are carried away by both wind and water resulting in a loss of soil at the location of impact.

B. Birds and Animals: Although areas on Vieques used for line firing are not known bird nesting areas, the use of explosive ordnance undoubtedly causes occasional destruction of birds. Similar destruction of small animals may also be anticipated. A complete inventory of terrestial animals is not available, thus the full effect of animal destruction cannot be determined. Observations of the impact area, however, seldom reveal animal destruction.

C. Marine Life: The use of explosive ordnance, particularly in the air impact area, will result in destruction of some fish, crustaceans, coral formation, and damage to the benthic marine ecosystems, when an errant round explodes in the water.

PART VII

SUMMARY

Draft Environmental Impact Statement

I. Name of Action: Draft Environmental Impact Statement for the continued use of the Vieques Military Training Complex (Administrative Action).

II. Description of Action: The action proposed is the continued use of the Vieques Military Training Complex, consisting of the Western Area, and the Maneuver, and Surface and Air Impact areas which form the Eastern Area. This Complex provides facilities and targets for support of, and training in amphibious landings and ground maneuvers; individual and crew served weapons familiarization; naval gun fire support; and close air support exercises.

IV. Environmental Impact and Adverse Environmental Effects:

The nature and extent of training in the Western Area, which is limited to small unit training without the use of live or blank ammunition firing is such as to produce a negligible environmental impact.

Training in the Eastern Area, which involves large scale amphibious maneuvers, aerial bombardment, and naval gun fire support, utilizing explosive ordnance results in limited cratering, littering, destruction of vegetation, birds and animal life, marine life, and the creation of some air, water, and noise pollution.

With the exception of the problem of disposal of unexploded or "dud" ordnance, the use of the area appears to have no long-term effect on the productivity of the land or the natural life it supports.

The use of the area as a military training complex, with its concomitant denial to other civilian enterprise, is less deleterious to the environment that would be expected should unrestricted human access be permitted.

V. Alternatives Considered: (to be provided by CMC)

Alternatives considered include:

A. Relocation of training to other sites in CONUS or other islands in the Caribbean Area.

B. Prohibition on use of live ordnance.

C. Restrictions on the numbers of personnel and the manner in which training is conducted.

Alternative use of the Vieques lands in the event they were to be abandoned by the Department of the Navy include proposed use by private industry, tourism, and agriculture. Based on the current economic development of the island, and its past history, the highest and best use of the land for the forseeable future would be for cattle grazing.

VI. Federal, State, and local agencies from which comments have been requested. (to be provided by CMC)

Suggested sources include:

Commonwealth of P. R. Environmental Quality Board

U. S. Department of Interior. Soil Conservation Services

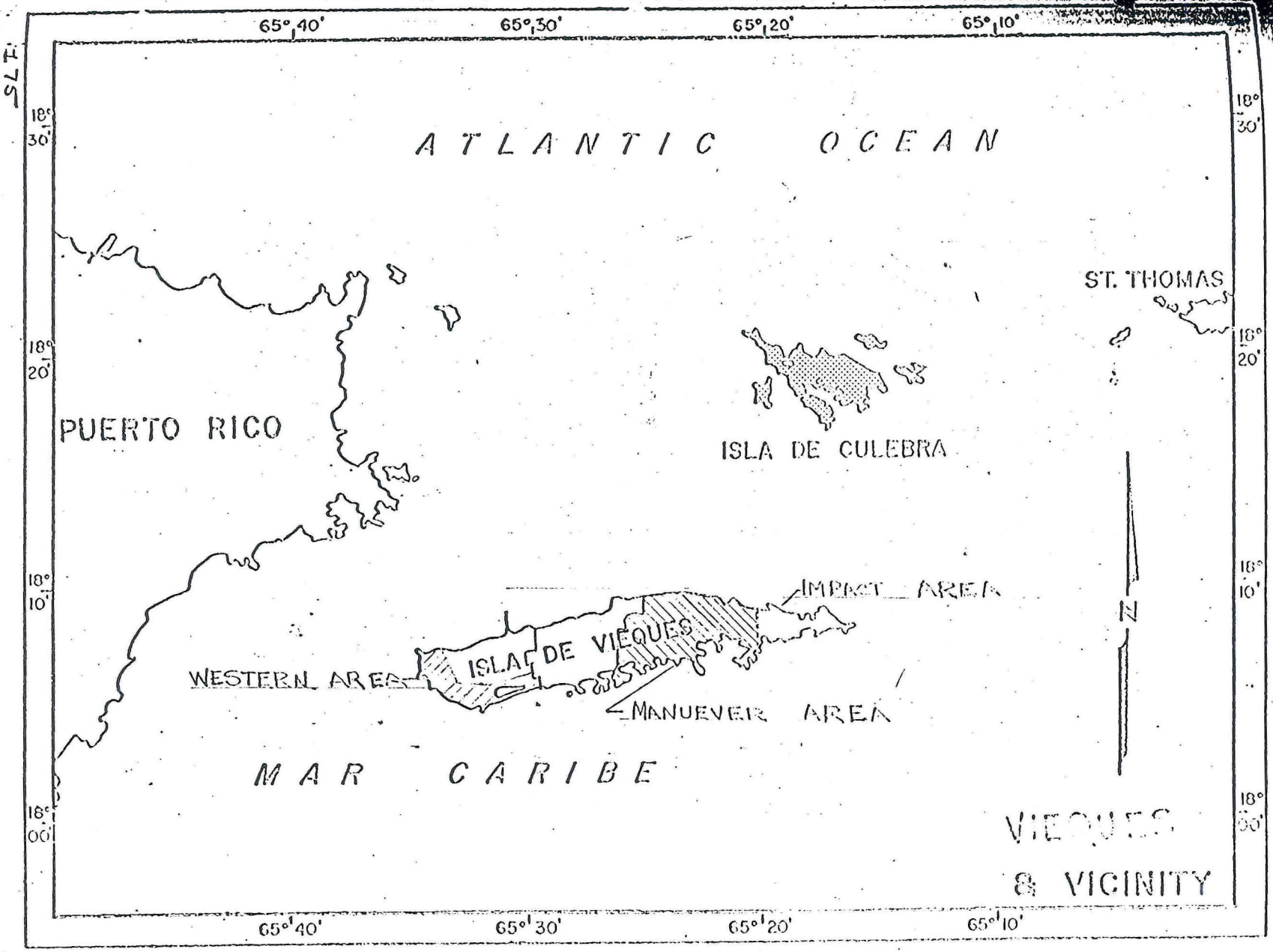

65°40'
65°30'
65°20'
65°10'
18°30'
18°20'
18°10'
18°00'
ATLANTIC OCEAN
PUERTO RICO
ISLA DE CULEBRA
ST. THOMAS
IMPACT AREA
ISLA DE VIEQUES
WESTERN AREA
MANUEVER AREA
MAR CARIBE
N
VIEQUES
& VICINITY

TABLE OF CONTENTS

	Paragraph	
Section I		
UCTION TO CAMP GARCIA TRAINING FACILITIES		
e.	101	1-1
al Characteristics.	102	1-1
f Ranges.	103	1-1
ng and Programing Requirements.	104	1-2
Section II		
AND RESPONSIBILITIES		
ding Officer, Camp Garcia.	201	2-1
ng Unit Commander.	202	2-1
rcia Range Control Officer.	203	2-1
rs in charge of Firing.	204	2-2
Safety Officer.	205	2-3
Section III		
ND MANEUVER AREA USE		
bility.	301	3-1
ing procedures.	302	3-1
Ranges.	303	3-1
Firing Ranges and Gun Positions.	304	3-2
Track Vehicle Roads.	305	3-2
ions.	306	3-2
and Pyrotechnics.	307	3-2
Wire.	308	3-2
. . . . .	309	3-2
arkers and Signs.	310	3-2
cations.	311	3-2
of Ranges and Maneuver Areas.	312	3-3
Section IV		
Regulations.	401	4-1
Supervision.	401.1	4-1
almet.	401.2	4-1
ags/Redlight.	401.3	4-1
Ammunition.	401.4	4-1
mmunition.	401.5	4-1
ion Guards.	401.6	4-1

	Paragraph	Page
TY (Continued)		
Mortar Overhead Fire	401.7	4-1
ng Vehicles	401.8	4-1
Responsibility	402	4-1
ission to Fire	402.1	4-1
unication Failure	402.2	4-2
cer Responsibility	402.3	4-2
ral Limit Marker	403	4-2
o Matias	404	4-2
	405	4-2
ires	406	4-3

Camp O 3[illegible]

SECTION I
INTRODUCTION TO CAMP GARCIA TRAINING FACILITIES

. Purpose. The ranges and maneuver areas at Camp Garcia are designed operated to provide complete and effective training facilities for /BLT and other contingency forces. In addition the ranges and maneuver as are used for the training of artillery, engineers, tanks and cial aviation and ground units of both the active and reserve compon- s of the Marine Corps. Occasionally units of the Army, Navy and Air ce regular and reserve establishments make use of the Camp Garcia ining facilities.

2. Physical Characteristics.

The training facilities on Vieques may be divided into the Eastern d Western Areas.

a. The Western Area consists of more rugged terrain than the Eastern ea and is considered excellent for small unit training in guerrilla rfare and reconnaissance. Due to its proximity to the Naval Ammunition cility, open firing of either live or blank ammunition, or rotechnics is not allowed.

b. The Eastern Area is divided into firing ranges and maneuver areas. ere are 8 live fire ranges in addition 11, 000 acres of maneuver ea in which blank ammunition and pyrotechnics may be fired.

Ranges 1 through 6 are primarily small arms ranges along the northern ast of the island. All firing is done seaward. They are established r the range survey of 26 April 1966 conducted by the 2d Topo. Co..

Three excellent OP's (7,8, and9) are located along the boundry of e Eastern impact area. Of these OP's 7 and 9 have bunkers which afford actical training for observers while providing for their safety.

3. List of Ranges.

ange 1: Combat Rifle Range/Platoon Live Fire Exercise.....

ange 2: Pistol Range.

ange 3: M-60 Caliber Machine Gun Range.

ange 4: Hand Grenade Range.

Range 4A: Flame Range.

Range 4B: M-79 Grenade Launcher/Rifle Grenade Range

Range 5: 3.5 Rocket Launcher Range.

Range 6: Demolition Range.

Range 7: Direct Fire Range. May be used by all direct fire weapons Including Ontos, Tanks, Artillery, 106's and .50 Caliber, Machine Guns.

Range 8: Company Live Fire Exercise Range.

104. Planning and Programming Requirements. An effective range maintenance facility must consider both future ordnance developments and the anticipated training requirements of the Marine Corps. Construction and maintenance of facilities is currently programmed to most existing requirements with due regard to these factors.

SECTION II
DUTIES AND RESPONSIBILITIES

201. Commanding Officer Camp Garcia

1. The Commanding Officer has overall responsibility for the control and range safety for live fire and maneuver in areas specified in paragraph 301.2.

2. In the discharge of this responsibility, he insures the:

a. Designation and marking of ranges, firing points, observation posts, and impact areas.

b. Installation and maintenance of targets for Marine Corps training purposes.

c. Installation and maintenance of range telephone and radio system centered at Camp Garcia.

d. Establishment of Range Control Center at Camp Garcia.

202. Training Unit Commander.

1. The training unit commander is directly responsible to the Commanding Officer, Camp Garcia, for the safe conduct of live firing and maneuvering by his unit, within the areas specified in paragraph 301.2.

2. He will designate, in writing, an officer in charge of firing for live firing conducted by his unit.

3. He will provide personnel as required by the Commanding Officer, Camp Garcia, to augment to Camp Garcia Range Control Center.

4. He will establish, as he deems appropriate, additional safety regulations for his unit.

203. Camp Garcia Range Control Officer.

1. This officer is the direct representative of the Commanding Officer, Camp Garcia on all matters concerning range control and range safety.

2. He is responsible for the overall maintenance of the ranges and maneuver areas and their scheduling and operation.

3. In addition he is responsible for apprising the Commanding Officer, Camp Garcia of the condition of the ranges and maneuver areas and making recommendations concerning their improvement.

204. The Officer in Charge of Firing

1. The Officer in Charge is responsible for the overall conduct of live firing and the compliance with these regulations by all participating personnel. He is further responsible for the following:

a. Firing safety.

b. Appointment and instruction of safety personnel to assist him in meeting his safety responsibilities.

c. Coordination with units using adjacent ranges or facilities which may be affected.

d. Providing for adequate medical personnel and evacuation facilities at the firing point.

e. Insuring that all required communications have been established, as required by this order.

2. The Officer in Charge of Firing will report to the Range Control Center by 1500 of the day prior to the date of scheduled firing to:

a. Sign for the range and all its facilities.

b. Obtain range flags, dud markers, and other equipment, as required.

c. Certify that all pertinent range and safety regulations have been read and understood.

d. Report to the Range Control Center the radio call sign of his unit.

e. Insure that road guards and air and sea sentinels are properly posted prior to commencement of firing. Insure that range flags (range lights during night firing) are displayed on the flag poles located at the firing position.

[illegible] of serious injury or death, the Officer in Charge of

a. Insure that first aid is given to the injured person(s).

b. Report to the nearest infirmary or dispensary by the fastest ins of communication available, the location, nature of the accident, d assistance required (doctors, ambulance).

c. Notify the Camp Range Control Center or the Officer of the day s to the location and nature of the accident and what action has been aken.

5. The Officer in Charge of Firing will personally control the commencement or resumption of all firing conducted.

6. Immediately upon securing firing, he will report to Range Control to:

a. Report the range secure.

b. Report dud locations or maintenance requirements.

c. Return range flags and other range equipment.

d. Certify in writing that the range has been policed.

205. Range Safety Officer

1. The Range Safety Officer is an officer designated by the Officer in Charge of Firing to maintain surveillance of, and safety within, the entire surface and air danger zones.

2. The Range Safety Officer may be assisted by position safety officers or noncommissioned officers as determined by the Officer in Charge of Firing.

3. Prior to movement to the range, the Range Safety Officer will:

a. Effect coordination with unit(s) using adjacent ranges or facilities, as may be directed by the Officer in Charge of Firing.

b. Familiarize himself with current safety regulations and this order.

c. Instruct safety personnel as to their specific duties.

4. Prior to commencement of firing, the Range Safety Officer will:

a. Insure that all regulations governing the specific range being used have been met.

b. Personally instruct and post all range sentries as required by the Officer in Charge of Firing.

c. Insure that the required range flags/lights have been properly displayed.

5. He will verify that the following safety regulations have been followed at the firing point, to include:

a. Proper implacement of the weapons at the firing position. (In case of artillery and other weapons with large surface danger areas, this function may be carried out by the Position Safety Officer).

b. Determination of the lateral limits of fire.

c. Determination that personnel are clear of the danger area by conducting a visual range sweep at those positions where the impact area can be observed.

d. Report to the Officer in Charge of Firing when all preliminary safety precautions have been taken.

6. During the conduct of the exercise the Range Safety Officer will:

a. Insure that all safety conditions prescribed in paragraph 4 above, remain in effect.

b. Insure that weapons are fixed within the safety limits prescribed.

c. Upon notification, information or observation of any unsafe condition, or when communications fail, command "CEASE FIRE".

7. The Officer in Charge of Firing may assume the duties of the Range Safety Officer for Firing conducted from numbered ranges only, and then only if he is physically present at the firing point.

SECTION III
RANGE AND MANEUVER AREA USE

301. Applicability.

The Eastern Vieques Operating Area is established by reference (e).

The supplementary safety regulations published herein are applicable :

a. All live firing conducted at numbered ranges within the Eastern Vieques Operating Area.

b. All live firing conducted from ground positions within the Eastern Vieques Operation Area.

c. All maneuvers conducted within the Eastern Vieques Operating Area.

302. Scheduling Procedures. Maneuver areas with few exeptions, are not reserved or scheduled at Vieques. Ranges, however, may be reserved on a "first come" basis. Since several units are often training on Vieques concurrently it is advatageous to submit training schedules and range request prior to the units arrival. Training schedules/range request should be addressed to the Commanding Officer (Attn: S-3) Camp Garcia.

303. Use of Ranges.

1. Entry into impact areas will be cleared through Camp Garcia S-3 Officer. Entry into impact areas will be granted only in exceptional cases.

2. Upon return from impact areas Camp Garcia S-3 Officer will be informed. All personnel implacing targets in the impact area will be escorted by E. O. D. Personnel.

3. The officer conducting firing, range guards, military police or any other military personnel observing any violation of range of safety regulations will make an immediate report to the Officer in Charge of Firing or to the Camp Garcia Range Control Officer.

4. All units attack firing to permit aircraft to fly through dangerous air space and to allow emergency vehicles to pass along any road or area necessary to accomplish their mission.

5. Units are allowed to use any ground area within the limits of the maneuver area for the conduct of any exercise which will not involve live firing. No maneuvers will be conducted in the impact area.

6. Before any organizational or other recreational pursuit is undertaken, the Camp Garcia Range Control Center will be consulted. Organizational or other recreational pursuit is strictly forbidden in areas made dangerous by firing. Determination of danger areas will be made by the Commanding Officer, Camp Garcia.

304. Field Firing Ranges and Gun Positions. Gun positions are neither fixed nor assigned at Vieques. Overlays showing the gun positions along with safety diagrams must be submitted to the Range Control Officer by 1500 on the day prior to firing for approval.

305. Use of Track Vehicle Roads. Track Vehicle roads will be utilized where marked. Track vehicles will not be taken across bridges in the maneuver area.

306. Demolitions. Detonation of demolitions will normally take place only on Range #6. Other areas may be utilized if requested and approved.

307. Blanks and Pyrotechnics. Blanks and pyrotechnics may be used without prior permission of the Commanding Officer, Camp Garcia.

308. Barbed Wire. Units using tactical (barbed) wire will insure that this is not placed around trees in lieu of pickets, and is removed at the completion of training.

309. Trees. Trees in the maneuver area are not to be cut down, scarred or marked. Branches are not to be used for fuel or camouflage. It is the unit commander's responsibility to insure that this regulation is complied with.

310. Range Markers and Signs. Range markers and signs are not targets. Training units are directed not to treat them as such. Range signs are not to be moved nor is equipment to be placed against them.

311. Communications.

1. The firing unit will establish both wire and radio communication with the Camp Garcia Range Control Center.

2. Firing units will provide all wire and radio equipment necessary for establishing required communications.

3. Procedures.

[illegible] will be connected to the nearest terminal strip on the Camp Garcia range line, which is overheaded on poles from Camp Garcia through Ranges 1 to 6, and to OP's 7, 8, and 9. Terminal strips are painted red and are marked "MAG LINE".

, Radio and wire communication checks with the Camp Garcia
ange Control Center will be conducted at least once every thirty
inutes.

. The call sign for Camp Garcia Range Control is Garcia Range Control.
he radio frequency for Camp Garcia Range Control is available at
he Range Control Center.

Police of Ranges and Maneuver Areas.

1. It is the responsibility of the training unit commander to insure the proper police of ranges and manuever areas.This includes the removal of brass,fibers,boxes,trash,and wire lines by the training unit.

2. Brass will be seperated from boxes and both items will then be turned in to the Camp Garcia Ammunition Dump.

3. Fibers, waste and trash will be disposed of at the Camp Garcia trash dump.

4. All ammunition boxes taken to the ammunition dump will contain a certificate of Inspection NAVMC 816 signedby an Officer or SNCO of the training unit.

5. All unused ordnance will be turned in to the Camp Garcia Ammunition dump.

6. The Officer in Charge of Firing will complete a Range Training and Manouver Area Inspection Report when police of the firing pointor maneuver area has been accomplished by the training unit. These forms are available at the Camp Garcia Range Control Center.

CampO 3120:1B
1 June 1970

SECTION IV
SAFETY

401. GENERAL

1. All firing, except for blanks, pyrotechnics, and the explosion of demolitions will be executed under the immediate supervision of an officer.

2. The steel helmet with liner will be prescribed for:

a. All personnel in the vicinity of firing points during training or target practice with high explosive ammunition.

b. All personnel subject to overhead fire.

c. Personnel engaged in sweeping impact areas for unexploded munitions.

3. A scarlet streamer during daylight hours or a red light at night will be displayed whenever firing or other training involving an unusual hazard to non-participant is undertaken. If the signal is removed for any reason, firing or training will cease immediat.

4. Tracer ammunition will not be fired on any range impacting into an earth barrier.

5. Blank cartridges will not be fired at personnel within 20 meters, as the wad or the paper cap may fail to break up, and cause injury.

6. Ammunition placed on ranges will be guarded at tll times. Precautions will be taken to prevent its accidental ignition or detonation.

7. Firing of 81 MM mortars over the heads of troops is prohibited.

8. Firing over the heads of personnel from moving vehicles is prohibited.

402. UNIT RESPONSIBILITY

1. Prior to firing, establish communications with the Camp Garcia Range Control Center and request permission to fire.
Upon completion of firing, permission to secure from the Range Control net must be requested from Camp Garcia Range Control Center.

. In the event of a communication failure, a unit will cease firing mmediately and take appropriate action to restore communications.

. If an Officer in Charge of Firing observes an unsafe condition he .s authorized and required to order a cease fire to all units.

403. Lateral Limit Markers. The impact areas for all numbered ranges are delineated by lateral limit markers visible from the firing point. The marker delineating the left limit is a white panel; that delineating the right limit is a white panel with a red diamond.

404. Cerro Matias. Cerro Matias (54800630) is an observation post for the air impact area. No firing is permitted within a 300 meter radius when it is unmanned or within 1000 meters when it is occupied.

405. Duds

1. For the purpose of this order, a dud is defined as any explosive missile which has been fired or projected, and which though impacted has failed to detonate.

2. All questionable ordnance or objects will be cosidered duds.

3. Firing unit personnel or personnel of a maneuvering unit will not enter an impact area for the purpose of marking a dud.

4. If a dud is found outside an impact area it will be marked with three wooden stakes and white streamers, which are available for issue at the Camp Garcia Range Control Center.

5. Unused or unserviceable ammunition will not be reported as duds.

6. Personnel locating and marking duds will make an immediate telephone report to the Camp Garcia Range Control Center, if there is any hazard to continued training. Reports will include

a. Location (by coordinates, if known).

b. Number of duds

c. Type of ordnance, if known

d. Name and unit of person reporting dud.

7. Under no circumstances will duds be handled, removed, influenced, or destroyed by other than Explosive Ordnance Disposal personnel.

406. Misfires. Misfires are not to be reported as duds. Misfires will be labeled as such and returned to the ammo dump with unused or unserviceable ammunition. There is no requirment to report misfires to range control.

CampO 3120.53
1 June 1970

RANGE #1

2. Type of Firing. Small Arms

3. Allowed Firing

a. Weapons. M-1 Rifle, M-14 Rifle, M-1 and M-2 Carbines, BAR's, service pistols, and .45 caliber submachine guns.

b. Ammunition. Service

3. Surface Danger Areas

a. Right Flank. Coordinates 45510822 (Azimuth 18° 41')

b. Left Flank. Coordinates 45440825 (Azimuth 339° 22')

4. Communications. Radio communications with the Range Control Center is required. Also a field telephone must be connected to the terminal strip at the firing site.

5. The left and right limits of the firing points are marked with 120 MM shell casings 12" above the ground. Azimuth markers are visible from the firing point.

6. The Range Survey conducted by this organization in February 1965 has been converted over to the North American 1927 Datum to fit the Prototype Chart published in 1965 of Vieques, Puerto Rico.

CampO 3120.1B
1 June 1970

RANGE # 2

1. Type of Firing. Small Arms

2. Allowed Firing.

   a. Weapons. Service Pistol

   b. Ammunition. Service

3. Surface Danger Areas.

   a. Right Flank. Coordinates 45810827 (Azimuth 01° 28' 48")

   b. Left Flank. Coordinates 45790827 (Azimuth 01°28' 48")

4. Communications. Radio communications with the Range Control Center is required. Also a field telephone must be connected to the terminal strip at the firing point.

5. The pistol course provides targets at fifteen and twenty-five yards. Targets are available at Camp Garcia Range Control Center.

CampO 3120.1B
1 June 1970

RANGE #3

1. Type of Firing. Small Arms

2. Allowed Firing. BAR'S

a. Weapons. BAR'S, Machine guns.

b. Ammunition. Service.

3. Surface Danger Areas.

a. Right Flank. Coordinates46400876 (Azimuth 16° 06' 08")

b. Left Flank. Coordinates 46370876 (Azimuth 345° 48' 17")

4. Communications. Radio communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

CampO 3120.1B
1 June 1970

RANGE #4

1. Type of Firing. Hand Grenade

2. Allowed Firing. Fragmentation hand grenades

3. Surface Danger Areas.

a. Right Flank. Coordinates 46860874 (Azimuth 46° 05' 07")

b. Left Flank. Coordinates 46830874 (Azimuth 317° 52' 02")

4. Communications. Radio communications with the Range Control Center is required. Also a field telephone must be connected to the terminal at the firing point.

5. Remarks.

a. During the conduct of throwing live fragmentation hand grenades, all personnel undergoing instruction will remain to the rear of the control pit until ordered forward by the Safety Officer or his assigned represenative.

b. In the event that a live grenade fails to explode (DUD), all personnel at the throwing stations, including instructors, will remain down and behind cover until authorized by the Safety Officer to resume throwing.

c. Duds will be left in place until the cessation of all throwing operations unless in the opinion of the Safety Officer a particular dud constitutes a hazard and must be removed prior to the resumption of throwing.

d. Only qualified EOD personnel from Camp Garcia Range Control will be authorized to move and/or dispose of duds. Employment of demolitions is restricted to the disposal of duds, and is not to exceed four pounds of TNT, or equivalent.

e. In the event an armed grenade is dropped in the pit, the instructor will yell "Grenade in Pit" and evacuate himself and the trainee from the pit. All other personnel in the pit area will immediately hit the deck and remain until the Safety Officer authorizes them to resume throwing.

6. Azimuth markers are visible from the firing point. Right and left limits are marked with red shell casings 8" above the ground.

Camp0 3120.1B
1 June 1970

RANGE #4A

1. Type of Firing. Flame Range.

2. Allowed Firing. Portable flame thrower, flame tank.

3. Surface Danger Area.

   a. Right Flank. Coordinates 47260884 (Azimuth 48°.03' 19")

   b. Left Flank. Coordinates 47210884 (Azimuth 347° 45' 18")

4. Communications. Radio communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

5. The left and right limits of the firing point are marked with red 106MM shell casings, 8" above the ground. Azimuth markers are visible from the firing point.

RANGE #4B

1. Type of Firing. M-79 (40MM), Rifle Grenades.

2. Allowed Firing. M-79 (40MM), Rifle Grenades

3. Surface Danger Area.

   a. Right Flank. Coordinates 47710698 (Azimuth 348° 11' 09")

   b. Left Flank. Coordinates 47680896 (Azimuth 294° 43' 59")

4. Communications. Radio communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

5. Range Limits. The right and left limits of the firing point are marked with 105MM shell casings, 12" above the ground ,painted red. The right and left limit markers are visible from the firing line.

6. Duds. Do not enter the impact area on the range unless accompanied by Camp Garcia EOD personnel. Keep a record of location of duds and report same to the Range Control Center.

Camp0 3120.1'2
1 June 1970

RANGE #5

1. Type of Firing. 3.5 Rocket Launcher.

2. Allowed Firing.

a. Weapons. 3.5 Rocket Launcher.

b. Ammunition. 3.5 Rocket, WP, TP, HEAT.

3. Surface Danger Area.

a. Right Flank. Coordinates 47950895 (Azimuth 34° 05' 39")

b. Left Flank. Coordinates 47936904 (Azimuth 316° 05''08")

4. Communications. Radio communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

5. The left and right limits of the firing point are marked with red 106MM shell casings, 8" above the ground. Azimuth markers are visible from the firing point.

Camp 3120.1B
1 June 1970

RANGE #6

1. Type of Firing. Demolitions.

2. Allowed Firing. Shaped charges not to exceed 40 pounds.

3. Surface Danger Area.

   a. Right Flank. Coordinates 49740896 (Azimuth 115° 33' 24")

   b. Left Flank. Coordinates 49740896 (Azimuth 326° 06' 45")

4. Communications. Radio communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

5. The road entering the demolitions range will be cleared during firing. Range flags will be displayed at flagpoles at the East and West road entrances.

CampO 3120.1B
1 June 1970

RANGE #7

1. Type of Firing. Direct Firing.

2. Allowed Firing. Tanks, Cntos, 106 Recoiless Rifle, Artillery, and 50 cal. Machine Gun.

3. Surface Danger Area.

a. Right Flank. Coordinates 5184064 (Azimuth 111° 01' 86")

b. Left Flank. Coordinates 5184064 (Azimuth 101° 06' 00")

4. Communications. Radio communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

5. The left and right limits of this range are marked with standard range markers and are visible from the initial firing point and the crest of Hill 10.

CampO 3120.1B
1 June 1970

RANGE #8

1. Type of Firing. Small Arms.

2. Allowed Firing.

a. Weapons. M-1 Rifle, M-14 Rifle, M-1 and M-2 Carbines, BAR's, Service Pistols, and .45 Caliber Sub-Machineguns.

b. Ammunition. Service.

3. Surface Danger Areas.

a. Right Flank. Coordinates 51470593 (Azimuth 191° 39' 00")

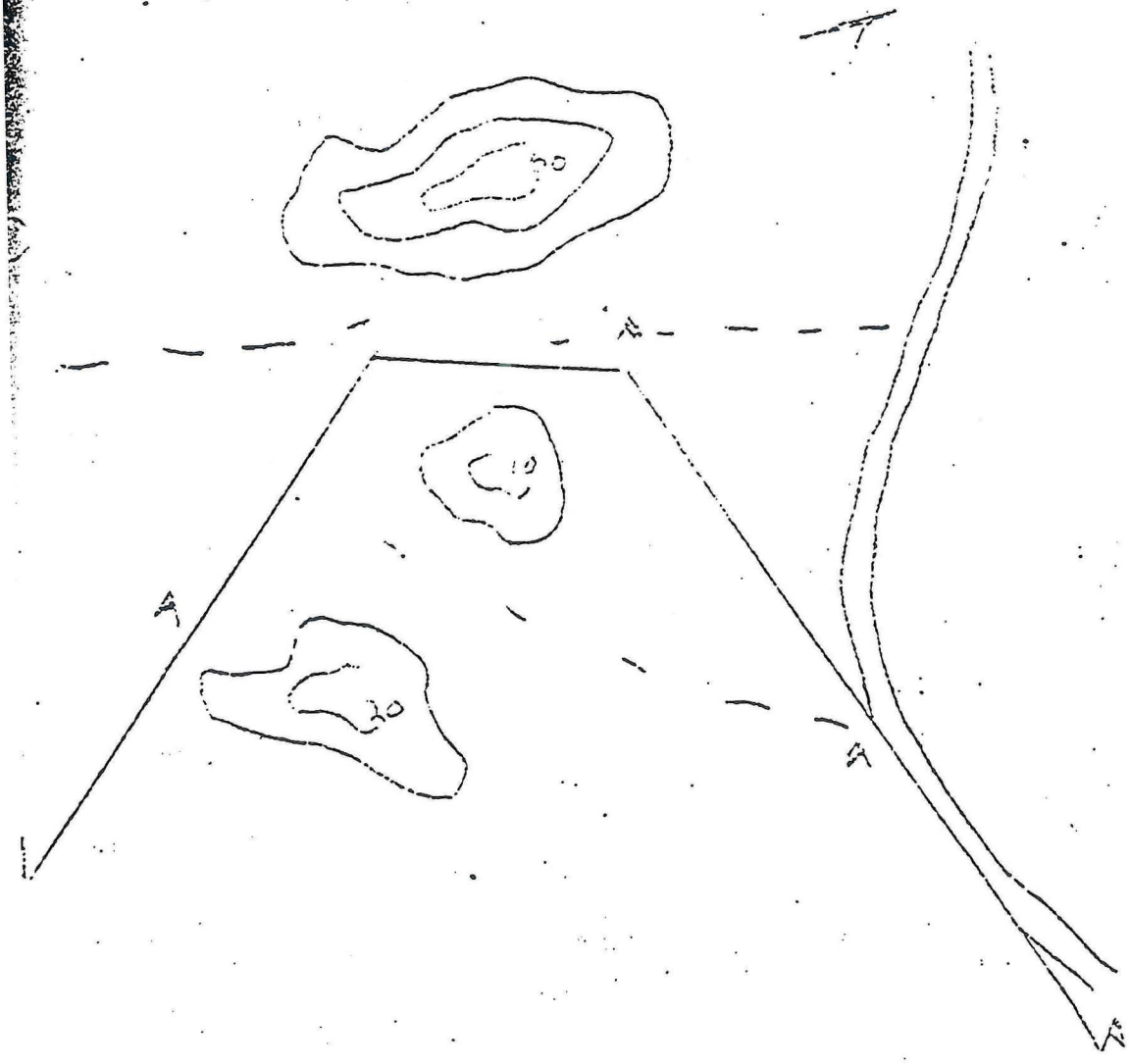
b. Left Flank. Coordinates 51730606 (Azimuth 159° 10' 00")

4. Communications. Radio Communications with the Range Control Center is required. Also, a field telephone must be connected to the terminal strip at the firing point.

5. There will be no explosives other than small arms ammunition used on this range. The right and left limits of this range are marked with standard range markers and are visible from the initial firing point and the crest of Hill 10.

Camp0 3120.13
1 June 1970

SKETCH MAP OF RANGE #8



NOTE: Not drawn to scale

ENCLOSURE (9)

CampO 3120.1B
1 June 1970

SAFETY REGULATIONS FOR RESERVE LIVE FIRE EVALUATION EXERCISE RANGE 1

1. Location.

a. The Reserve Live Fire Exercise will be conducted on Range #1.

2. General Safety Requirments.

a. The following are the general safety requirments for the conduct of this exercise.

1. All personnel participating in the exercise will wear steel helmets.

2. Weapons will be loaded only on command of the Range Safety Officer.

3. Bolts will be open, and pieces locked at all times when not participating in the exercise.

4. When checkfire is given all weapons will cleared and locked with bolts open.

5. All weapons will be cleared and locked before personnel move off the range.

6. The signal to check fire will be given by voice communication or a red smoke grenade or both.

7. Any Range Safety Officer or NCO may call checkfire at any time he deems it necessary.

8. Only the Range Safety Officer may re-activate the exercise after check fire has been called, and then only after he has insured that it is safe to do so.

9. If radio communications are lost at any time between Range Safety personnel, checkfire is mandatory.

10. All fire must be directed in a Northerly direction and must be confined to the limits of Range 1.

11. Demolitions will be surrounded by white engineer's tape. No one is permitted inside the tape. The maximum charge is a ½lb block.

12. No demolitions will be fired during cease fire.

13. All assaults will be made from a line of skirmishers formation.

14. Weapons will be pointed down range at all times.

3. Safety Personnel Required.

a. The following Safety Personnel will be required:

1. One (1) Range Safety Officer, provided by the Reserve Liaison Section.

2. One (1) officer not in TAD status to act as Safety Officer for the maneuvering element.

3. Three (3) SNCO'S not in a TAD status to act as Safety NCO's. Distribution will be one (1) per fire team.

4. One (1) corpsman.

4. Communications.

a. The following communications equiptment will be required.

1. Each Safety Officer will carry an AN/PRC 25 with an extra battery.

2. Each Safety NCO will carry an AN/PRC 25 with an extra battery.

3. One (1) AN/PRC 25 will be located with the demolitions personnel.

b. Frequencies and call.signs will be assigned to the Safety Officer, after he has cleared them with the appropriate command.

5. Responsibility of Range Safety Personnel.

a. The Range Safety Officer:

1. Will have overall safety responsibility for the exercise.

2. Will insure that all safety personnel have read and understand these regulations.

3. Will position himself in such a place that he can exercise maximum safety control.

4. Will procure all necessary safety equipment.

5. Will check out the range at the Range Control Center.

6. Will obtain permission to fire from the Range Control Center prior to commencement of the problem.

7. Will insure that all Camp Garcia Range regulations are complied with.

8. Will notify the Range Control Center of any accidentsthat occur.

b. The Safety Officer for the Maneuvering Element:

1. Will move with the maneuvering element.

2. Will exercise positive safety control over the maneuvering element.

3. Will call cease fire and inform immediately the Range Safety Officer of the situation, when an unsafe situation becomes apparent.

4. Will so inform the Range Safety Officer when it is safe to fire again.

5. Will insure that all fire is conducted in a northerly direction and is confined to the limits of range #1 and that all weapons are pointed down range at all times.

c. Safety NCO's

1. Will be positioned in each fire team.

2. Will exercise positive safety control over their fire team.

3. Will call cease fire and inform the Safety Officer nearest [illegible] once an unsafe situation becomes apparent.

4. Will insure that all fire from his assigned fire team is conducted in a northerly direction and is confined to the limits of range #1.

6. Safety Equipment Required.

a. The following safety equipment is required for the conduct of the exercise.

1. Eight (8) AN/PRC 25's

2. One (1) TA 312 Field Telephone

3. Ten (10) Red Smoke Grenades

4. Five (5) Steel Helmets w/o camouflage cover.

5. One (1) Emergency vehicle

CampO 3120.1B
1 June 1970

ETY REGULATIONS FOR LIVE FIRE EXERCISE ON RANGE #8

General Safety Recuirments. The following are the General Safety Requirments for the conduct of this exercise:

a. All personnel participating in the exercise will wear helmets.

b. Weapons will be loaded only on the command of the Range Safety Officer.

c. Bolts will be open and pieces locked at all times when not participating in the exercise.

d. When cease fire is given all weapons will be cleared and locked with bolts opened.

e. All weapons will be cleared and locked before moving off the range.

f. The signal for cease fire will be given by voice communication or red smoke or both.

g. The Range Safety Officer or NCO's may call cease fire at any time they deem it necessary.

h. Only the Range Safety Officer may re-activate the exercise after cease fire has been called, and then only after he has insured that it is safe to do so.

i. If radio communications are lost at any time between Range Safety personnel, cease fire is mandatory.

j. Demolitions will be surrounded by white engineer tape. No one is permitted inside the tape. A ¼ pound block of explosives is the maximum allowable charge.

k. All fire from the base of fire element must be kept within the barrel markers on Hill's 10 and 20.

l. The base of fire must be lifted when the assault element

m. Frontal assaults may be made by squad or platoon sized units only.