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REQUIRED OPERATIONAL CAPABILITY (ROC) NUMBER TNG-106
FOR A MANUAL-WAR-GAME-BASED TACTICAL TRAINING SYSTEM
(U) MARINE CORPS WASHINGTON DC 06 FEB 85

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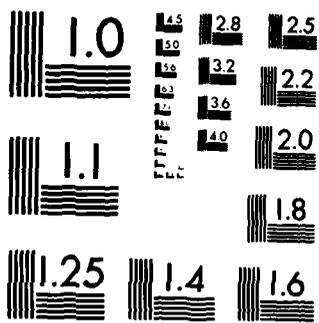
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From: Commandant of the Marine Corps

Subj: REQUIRED OPERATIONAL CAPABILITY (ROC) NO. TNG-1.06 FOR A
 MANUAL-WAR-GAME-BASED TACTICAL TRAINING SYSTEM

Ref: (a) MCO 3900.4B

Encl: (1) ROC No. TNG-1.06 for a Manual-War-Game-Based Tactical
 Training System

1. This letter establishes ROC No. TNG-1.06 for a Manual-War-Game-Based Tactical Training System. The ROC has been developed in accordance with the reference and is contained in the enclosure.

2. The Commanding General, Marine Corps Development and Education Command (Director, Development Center) is the Marine Corps point of contact for the development efforts pertaining to the Manual-War-Game-Based Tactical Training System.

Distribution:
 (See attached)

Raymond Franklin
 RAY "M" FRANKLIN
 Director
 Deputy

MAR 26 1985

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ROC. NO. TNG-1.06
REQUIRED OPERATIONAL CAPABILITY
FOR THE MANUAL-WAR-GAME-BASED TACTICAL TRAINING SYSTEM

1. STATEMENT OF THE REQUIREMENT

There is a requirement to provide training systems for leaders and staffs at all levels of a Marine Corps air ground task force (MAGTF) to practice tactical decision making, force coordination, and the movement and maintenance of forces, skills in which they must be proficient in order to accomplish their mission on a battlefield. The training systems will employ various wargaming methodologies to simulate the combat results necessary to generate realistic, decision-making training. The different training systems must emphasize Marine Corps doctrine, tactics, techniques, weapons, and order of battle. They must be appropriate for use with widely varied geographical and tactical scenarios and incorporate amphibious and vertical assault, airlift, and land and maritime pre-positioning operations. The training systems should be usable throughout the Fleet Marine Force and at formal schools. A family of systems will be required in order to meet the training needs of different occupational specialties and levels of command. Systems and variants will be fielded through FY 95.

2. THREAT AND OPERATIONAL DEFICIENCY

- a. Threat. N/A
- b. Operational Deficiency. N/A
- c. Training Deficiency

(1) The nature of the deficiency and associated operational requirements are described in the following documents:

Marine Corps Mid-Range Objectives Plan (MMROP) of
29 April 1983

Marine Corps Studies on Training Requirements of 30 July 1982

(2) Marine Corps forces must be prepared to respond immediately and selectively to a wide variety of potential combat commitments. Combat training must be relevant to the demands of future combat operations. Threat forces continue to acquire more varied and extensive combat capabilities. Moreover, modern technology makes it possible for them to introduce new capabilities within a relatively short time. Consideration of the Marine Corps' own forces also makes it evident that severe training problems will be encountered. Modern combat equipment

is increasingly sophisticated and complex, and demands more exacting skills to employ and maintain it effectively. Moreover, new technology can have a pervasive impact on organization, procedures, and methods. Thus, it will be more and more difficult not only to train with equipment already in use, but to adjust training to the changes that are impending.

(3) The Tactical Warfare Simulation, Evaluation and Analysis System (TWSEAS) is presently the only effective training device which can provide essential stimuli and feedback for dynamic, integrated staff functioning. Thus, staffs get little opportunity for tactical decision-making, and neither their plans nor their performance can be thoroughly evaluated. The exercise scenarios are characteristically rigid and stereotyped. The exercise is driven by a preconceived schedule of events rather than by the decisions and action of the participants. Therefore, the scenarios are not responsive to revisions in threat definition nor are they tailored adequately to the widely varying sizes and types of combat task organizations that the Marine Corps must be prepared to employ in combat.

(4) Most conventional field exercises do not provide adequate opportunities for effective training in integrating the aviation, ground combat, and combat service support elements of the MAGTF. Existing manual control methods cannot cope with the great range, speed, and diversity of these operations. Integration demands that the aviation and ground combat elements work together with the combat service support element continuously and in full cooperation to achieve the full, coordinated employment of their respective capabilities in accomplishing the landing force mission. Timely information cannot be continuously generated by the control organization. Aviation and ground elements experience great difficulty in exchanging relevant information for mutual use. Exercise situations cannot be developed sufficiently for the landing force to apply the maximum combat power inherent in integrated air, ground, and logistics operations.

(5) The only Marine Corps provided command and control gaming devices available to FMF units are extremely expensive, require dedicated personnel assets to operate, and special support facilities. These factors negate the feasibility of purchasing sufficient devices to meet the operational requirement. Additionally, they are not sufficiently mobile to meet the requirement contained in this ROC.

(6) The various battle simulations and war games models developed by the Army do not adequately reflect Marine Corps doctrine, tactics, techniques, weapons, or order of battle.

(7) The consequences of the foregoing deficiencies are:

(a) Leaders of Marine Corps units do not receive sufficient practice in tactical decision making.

(b) Exercise records and reports do not provide fruitful subjects for subsequent study and research for purposes of individual learning or acquiring new knowledge of the combat process.

(c) Field exercises do not identify strengths and weaknesses in amphibious training programs nor are they reliable indicators of a unit's combat readiness.

(8) These deficiencies are already serious and will become even more pronounced in the future if existing manual methods and the low density TWSEAS continue to be the sole means of controlling tactical exercises. As warfare grows more complex, so does the difficulty of realistically portraying projected battlefield conditions in the exercise environment.

(9) The impact of these deficiencies is pervasive. The limitations inherent in conventional exercises constitute a major obstacle to the development of viable amphibious training programs. The deficiencies cited herein are characteristic of all conventional exercises conducted today throughout the Marine Corps.

3. OPERATIONAL ORGANIZATIONAL CONCEPTS

a. General

(1) A family of manual war game based training systems will be developed to provide leaders at all levels of a MAGTF the opportunity to practice tactical decision making, force coordination, and movement and maintenance of forces, skills in which they must be proficient in order to accomplish their mission on a real battlefield.

(2) Several different war game training systems will be developed to meet the specific training needs of both different levels of leaders and different occupational specialties.

(3) The appropriate war game based training systems will provide effective training to the aviation, ground combat, and combat service support elements while training as a MAGTF or while training independently in preparation for a MAGTF exercise.

b. Concept of Employment

(1) Users - The training systems can be used by both active and reserve Marines in FMF or non-FMF units.

(2) Location of Use - The highly portable systems will be capable of use in garrison, formal schools, aboard ships, or in field locations.

c. Concept of Development

(1) An Instructional Systems Design (ISD) approach will be utilized.

(2) Learning objectives, task statements, and/or a list of duties will be cross-referenced to mission performance standards of the Marine Corps Combat Readiness Evaluation System (MCCRES) and individual training standards.

d. Estimates of Quantities Required

(1) "TACWAR" - Squad, Platoon, and Company level - a three dimensional terrain board game used as training aid for related subjects; i.e., land navigation, call for fire, and SALUTE - 140 copies.

(2) "STEELTHRUST" - Bn/MAU level played in real time, using enlarged versions of standard maps conducted as a full staff CPX using the game board to determine combat results. Since it exercises all combat and staff actions, it can be used in preparation for MCCRES exercises - 50 copies.

(3) "LANDING FORCE" - Same as STEELTHRUST above for MAB/MAF level (computer assistance may be required) - 25 copies.

(4) "WARFARE" - MAB/MAF level using accelerated time (20 days of combat can be simulated in a 2- or 3-day exercise.) Allows high level commanders and staffs to focus attention on critical decisions they must make (computer assistance may be required) - 25 copies.

e. Special Logistic and Training Support Considerations

The systems will be completely self-contained units designed to be easily employed and maintained by the user's organic personnel. Training controller personnel for units will be accomplished initially by the principal development activity (PDA).

4. ESSENTIAL CHARACTERISTICS

a. The different members of the family of war game-based training systems will use standardized formats and procedures as much as possible in order to minimize preparation time for the users of war game-based training systems.

b. Some of the training systems will have variants which can be used in addition to the basic training system. The various advanced modules will permit commanders to increase the degree of training in selected areas and types of tactical situations.

c. The training systems will accurately portray potential opposing forces' equipment and tactics. Specifically, the systems emphasize:

- (1) execution of amphibious doctrine.
- (2) proper use of terrain.
- (3) proper use of tactics.
- (4) integration of all fire support assets.
- (5) employment of natural and man-made obstacles.
- (6) time/distance realization in the maneuver of forces.
- (7) criticality of command and control.
- (8) timely integration of combat service support planning and operations.
- (9) expanded knowledge of OPFOR tactics, weapons, intelligence, counterintelligence, and order of battle.

d. In addition the following statements apply:

- (1) These war game-based tactical systems will be independent of other systems.
- (2) The systems do not replace any existing training media. They fill a void in training support for the FMF by complementing field exercises and other training.
- (3) Each system represents a simplified model of a battlefield and provides a vehicle for measurable improvement in the knowledge and application of tactics.
- (4) The purpose of each system is to challenge and stimulate the decision making process.
- (5) Commanders do have control over battlefield variables of firepower, maneuver, and serviceability.
- (6) The various war game-based training systems will be packaged as complete self-contained highly portable training devices that a unit can use in garrison or take with it when it deploys.
- (7) There will be no special maintenance, embarkation, or storage requirements.
- (8) Nuclear hardening is not required.

(9) Each system will emphasize all aspects of combat, combat support, and combat service support during night operations.

(10) Each system will allow for the conduct of combat operations under radio silence.

(11) Each system will allow for the employment of advance force elements prior to "D" Day for Landing Force and Warfare version only.

(12) The preamble to the war game will describe the development of a communications plan that includes transit at sea, amphibious operations and transition of communications ashore, operations ashore, and separate service integration into the communications plan.

(13) Each version will portray the effects of NBC and electronic warfare on the battlefield.

5. OTHER WARFARE AREAS CONCERNED. In addition to use as a war game, the system can be used as a training aid to help teach related subjects; i.e., land navigation.

6. RELATED EFFORTS. The Army has completed development of a series of battle simulations that employ Army doctrine, techniques, equipment, and organization.

7. TECHNICAL FEASIBILITY, ENERGY EFFECTIVENESS IMPACT, AND COST FORECAST

a. The technical feasibility of achieving the training requirement has been established with both Army and civilian commercial war games.

b. The technical problems to be solved are anticipated to be chiefly in the following areas:

(1) The development of combat simulation models which cover all required functional areas of combat and which can be applied to support desired training. Updating of the system will also be conducted as required.

(2) The development of performance standards and indices and the associated identification of observable, measurable characteristics of individual performance in accomplishing assigned combat missions and functions.

(3) The development of timely methodology for casualty/damage assessment.

(4) The development of a three-dimensional geomorphic terrain board for the war game which will be used to train small unit leaders.

(5) The development of war game and exercise methodology that will minimize the number of Marine controllers necessary for effective training.

c. The use of existing normal indoor lighting during an exercise is the only use of energy anticipated.

d. The cost forecast for the manual war game-based training systems is as follows (FY 84 dollars):

Development (RDT&E) Costs (Funding in Thousands)

<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>	<u>Total</u>
772	845	890	940	990	4437

Operations and Maintenance (O&M,MC) Cost

<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>	<u>Total</u>
415	525	425	525	435	2325

Procurement (PMC) Costs

<u>FY85</u>	<u>FY86</u>	<u>FY87</u>	<u>FY88</u>	<u>FY89</u>	<u>Total</u>
250	260	340	420	365	1635

<u>Total</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>
1437	1630	1655	1885	1790	8397

8. MANPOWER REQUIREMENTS. Although Marines of various ranks will be required to learn how to use the proposed training systems prior to the conduct of training exercises utilizing these war games, no other manpower requirements are anticipated.

9. TRAINING REQUIREMENTS

a. Instructor/operator training materials will be provided as an integral part of each training system. In addition, the PDA will conduct, as required, a series of training courses designed to provide a cadre of trained controllers for each system, i.e., such courses will be provided for TACWAR.

b. Funding is defined in paragraph 7 above.

c. No additional facilities will be required.

d. Instructors will initially be provided by the PDA. Once controllers from potential using units are trained, they will manage use of the systems.

e. Training aids/devices will be included in each system.

f. No ammunition/ranges will be required.

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