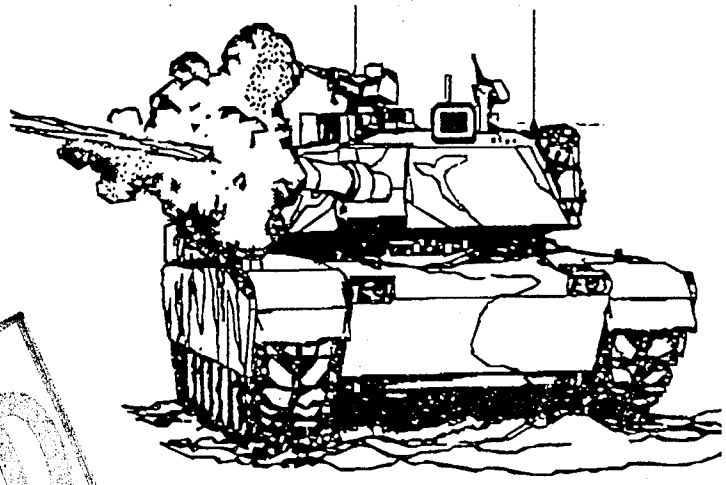
OCTOBER 1993

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION FINAL REPORT



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Mr. Lawrence G. Vowels

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The concept of Differential Distribution distributes M1A2 tanks only in leadership positions instead of replacing every M1A1 tank in an armored force. This concept is an opportunity to provide either a given armor force structure with a digitized command and control capability at less cost or provide this digitization to a larger armor force structure with a given number of M1A2 tanks. The United States Army Armor Center conducted this evaluation of the Differential Distribution concept in the Mounted Warfare Test Bed (MWTB) during the period 12-30 July 1993. A system of M1A2 simulators and a desktop Inter-Vehicular Information System (IVIS) display was used to simulate combat vehicle operations of company level on Fort Knox terrain to gain insights into the Differential Distribution concept.

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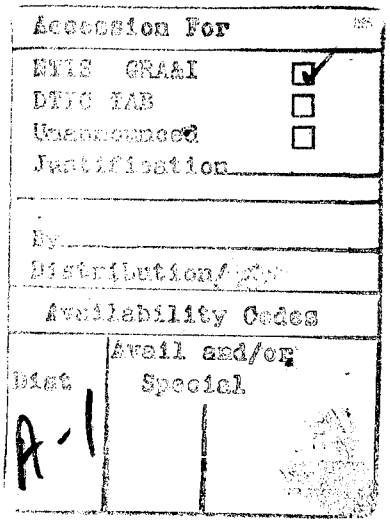
ABSTRACT

The concept of differential distribution distributes M1A2 tanks only in leadership positions instead of replacing every M1A1 tank in an armored force. This concept is an opportunity to provide either a given armor force structure with a digitized command and control capability at less cost or provide this digitization to a larger armor force structure with a given number of M1A2 tanks. The United States Army Armor Center conducted this evaluation of the differential distribution concept in the Mounted Warfare Test Bed (MWTB) during the period 12-30 July 1993. A system of M1A2 simulators and a desktop Inter-Vehicular Information System (IVIS) display was used to simulate combat vehicle operations of company level on Fort Knox terrain to gain insights into the differential distribution concept.



LIST OF FIGURES

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION

1. INTRODUCTION.

a. In November 1992, the Chief of Staff of the Army asked Training and Doctrine Command (TRADOC) to "look at the utilization of the M1A2 as a leader's tank vice an everyman's tank." The Commander of TRADOC subsequently directed that Fort Knox investigate this concept. This concept evolved into the Differential Distribution Concept. During the November 1992 through March 1993 time frame, a Differential Distribution White Paper was developed and coordinated at the Armor Center. This white paper examined the advantages and disadvantages of the concept from the logistics, maintenance, training and operations aspects (Appendix C). The warfighting aspect was not examined in the white paper.

b. This report details the conduct of the ensuing warfighting evaluation and the insights gained. The recommendations of this report will be based upon the results of the warfighting evaluation and the conclusions of the Differential Distribution White Paper.

c. The Directorate of Combat Developments (DCD), in concert with personnel from LORAL Corporation and Task Force 2, 33rd Armor Regiment, 194th Armor Brigade conducted an evaluation of the differential distribution concept in the Mounted Warfare Test Bed (MWTB) during the period 12-30 July 1993. A system of M1A2 simulators and a desktop Inter-Vehicular Information System (IVIS) display was used to simulate combat vehicle operations of company level on Fort Knox terrain to gain insights into the differential distribution concept.

2. EVALUATION OBJECTIVES.

a. To determine and compare the effectiveness of the control platoon and company with alternative distributions of M1A2 tanks.

b. To determine the workload of the platoon leader and company commander in each alternative.

c. To examine the impact of varying the number of position navigation (POSNAV), commander's independent thermal viewer (CITV), and IVIS equipped tanks in each alternative.

d. To examine the impact on command and control when the platoon leader/company commander is killed and his vehicle destroyed within the tactical scenario.

3. EQUIPMENT DESCRIPTION.

a. The differential distribution concept evaluation utilized the simulation capabilities of the MWTB. The MWTB includes vehicle simulators, a network that connects them, semi-automated forces (SAFOR) capabilities, control consoles, displays for monitoring the battlefield, utilities to facilitate execution of exercises, an automated data record capability, and a data reduction and analysis subsystem.

b. The specific equipment used in the evaluation is as follows:

(1) Four M1A2 manned simulators for use by the control platoon.

(2) One desktop IVIS console for interaction with the network by the company commander.

(3) Two SAFOR consoles (one for friendly forces and the other for opposing or threat forces).

(4) A plan view display of the terrain with stealth viewing capabilities for control of the exercises.

(5) A master control console for initial positioning and default loading of the simulators.

(6) Data logger equipment was used to digitally record the data produced in the exercises for subsequent data analysis.

4. EVALUATION SCOPE.

a. The differential distribution concept evaluation was designed to give insights to the operation of a tank company equipped with alternative mixes of M1A1 and M1A2 tanks. The evaluation focused on a platoon of manned simulators with the remaining tanks in the company represented by SAFOR vehicles. The company commander, utilizing the desktop IVIS display and FM radio, interacted with the manned simulators and SAFOR vehicles to lead the company through the exercises. The evaluation employed the tank pure company against a tank pure threat force.

b. The evaluation was limited to a primarily defensive operation employing the tank company in rolling woodland type (Fort Knox) terrain. This limitation was necessary due to the limited amount of training time for the crews on the manned simulators.

c. A limited number (four) of scenarios was employed in this evaluation due to the short time period of time allotted in MWTB for completion. The graphics overlays and operations orders for each scenario are shown in Appendix B.

d. A limited number of iterations for each alternative were produced due to the limited time available to use the simulators in MWTB.

5. ALTERNATIVES.

a. The evaluation of the differential distribution concept examined three alternative distributions of the M1A2 tank within the tank company. These alternative distributions are as follows:

(1) All tanks in the company are M1A2 tanks.

(2) The company commander, platoon leaders and platoon sergeants are equipped with M1A2 tanks. The remainder of the company is equipped with M1A1 tanks.

(3) Only the company commander and platoon leaders are equipped with M1A2 tanks. The remainder of the company is equipped with M1A1 tanks.

b. The alternatives are graphically depicted in figure 1. The shading over the center platoon and company commander is to depict that only those vehicles were manned with soldiers. The company commander did not occupy a manned simulator. He interacted with the manned vehicles and the SAFOR platoons via the desktop IVIS and the FM radio. The other vehicles were simulated through SAFOR capabilities.

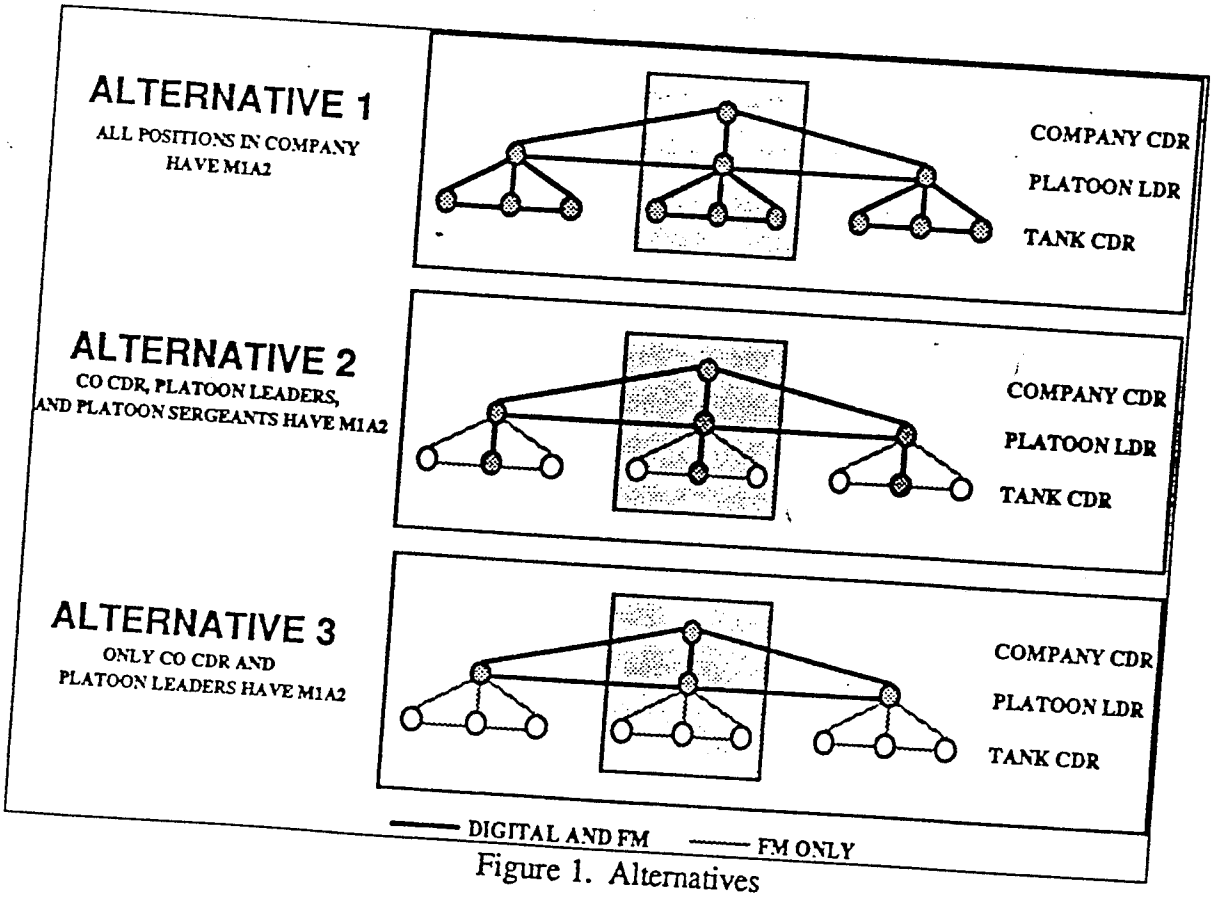


Figure 1. Alternatives

6. METHODOLOGY.

a. The methodology used to accomplish this evaluation was limited to examination of the operational effectiveness of each of the alternative tank distributions within the man-in-the-loop simulation of the MWTB.

b. The operational effectiveness of the alternatives was examined using a series of special constructed scenarios for the man-in-the-loop simulation. These scenarios used Fort Knox terrain due to model and time limitations. The scenarios were constrained to using the threat available within the simulation network due to the desire to operate in the unclassified mode. The threat utilized was strictly armor with never more than 25 tanks being sent against the alternative companies. The scenarios were constructed such that the alternative companies attacked a group of four threat tanks and were attacked by a group of 21 threat tanks within the scenario. The company was considered to have completed its mission if the threat force was defeated (less than eight threat tanks survived) while they suffered less than eight casualties.

c. The calendar for conducting the differential distribution concept evaluation is shown in figure 2. The troops participating in this evaluation were from Company C, Task Force 2, 33rd Armor Regiment, 194th Armored Brigade stationed at Fort Knox. While the personnel of the manned platoon were all from the same company, they were not an organic platoon within the company. The platoon sergeant and the two wingman tank commanders of this platoon were all experienced tank commanders. The platoon leader (2LT) was relatively new in this position, having only two months' experience. The training of the platoon on the M1A2 simulators during the period 12-19 July was performed by the M1A2 New Equipment Training Team (NETT) from Fort Knox. Pilot runs were practice scenarios similar to the four production scenarios.

JULY				
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
12	13	14	15	16
← M1A2 SIMULATOR TRAINING BY NET TEAM →				
COMPONENT	COMPONENT	MANEUVER	MANEUVER	MANEUVER
19	20	21	22	23
PILOT RUNS	← PRODUCTION RUNS →			
26	27	28	29	30
	← PRODUCTION RUNS →			MAKEUP/ EXCURSION RUNS

Figure 2. Calendar

d. A number of iterations of the alternative tank companies fighting against the threat forces via simulation were produced on the simulation network. The iterations along with the scenario employed were randomized to minimize the test participants' learning curve effects on the results. Data was collected both manually and through the data logger to address each of the objectives of this evaluation. The production run matrix for this evaluation is shown in figure 3.

SIMULATION RUN MATRIX			
RUN #	ALTERNATIVE	SCENARIO	DATE
1	3	2	20
2	2	1	20
3	2	2	20
4	1	4	21
5	3	1	21
6	2	3	21
7	3	4	21
8	1	3	22
9	1	2	22
10	1	1	22
11	3	3	23
12	3	2	23
13	1	2	23
14	2	4	26
15	2	2	26
16	3	2	26
17	2	1	26
18	1	4	27
19	3	1	27
20	2	3	27
21	3	4	28
22	1	3	28
23	1	1	28
24	3	3	29
25	1	2	29
26	2	4	29
27	2	2	30

Figure 3. Simulation Run Matrix

7. ANALYSIS.

a. The following measures of effectiveness (MOE) and measures of performance (MOP) were employed in the analysis of this evaluation. Measures of effectiveness were employed to quantify the contributions of each alternative in terms of force effectiveness. Measures of performance were employed to quantify the performance of each alternative tank force.

b. The MOE that was employed in this evaluation to assess force effectiveness is as follows:

$$\text{Loss Exchange Ratio (LER)} = \frac{\text{Number of Threat Systems Killed by U.S. Tanks}}{\text{Number of U.S. Tanks Killed by Threat Systems}}$$

c. The following MOP were used in the analysis of this evaluation:

(1) Mission completion rate.

(2) Messages received by company commander.

(3) Messages received by platoon leader.

(4) Messages sent by company commander.

(5) Messages sent by platoon leader.

(6) Number of targets engaged.

(7) Tank engagement range distribution.

d. The average loss exchange ratio (LER) over all trials for the three alternatives is shown in figure 4. This measure of force effectiveness details the number of threat systems killed for each tank lost by the company. Alternative 1, the all M1A2 force, has a slightly better LER than the other alternatives. The LER of alternative 1 was 11% greater than alternative 2 and 28% greater than alternative 3. It is noteworthy that the difference in LER is nearly constant between the alternatives as the number of M1A2 tanks is increased. None of the differences between the LERs is statistically significant at the 90% confidence level using the Wilcoxson Rank Sum test.

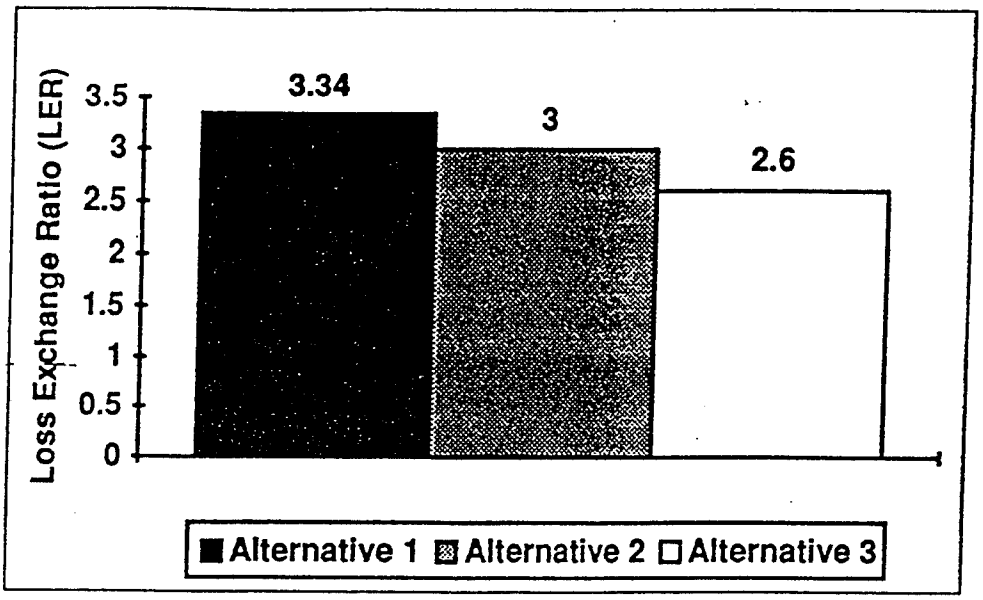


Figure 4. LER Comparison

e. The mission completion rate was calculated by dividing the number of missions that the tank company was successful by the number of missions attempted. Each of the alternatives attempted nine missions. A company was judged to be successful when it had attrited the opposing threat force to a level of less than 40% (i.e., only eight tanks survived), while retaining at least 50% of its strength (i.e. at least seven tanks surviving). A comparison of the mission completion rate is shown in figure 5. The all M1A2 tank alternative completed two missions more than the other two alternatives.

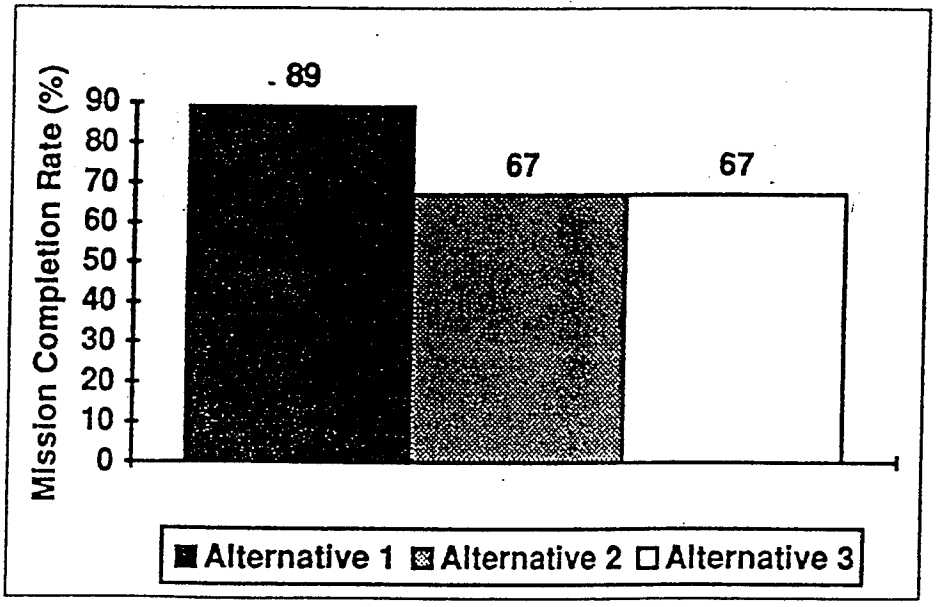


Figure 5. Mission Completion Rate Comparison

f. The number of messages transmitted and received, both via IVIS and the FM radio, by the platoon leader and the company commander was examined to measure the workload at these critical positions. If the platoon leader's vehicle was destroyed during any exercise, the next most senior individual in the manned platoon assumed the leadership of the platoon and the messages were recorded for this individual. The number of messages per hour of scenario was the specific measure of performance used in this analysis. This measure normalizes the raw number of messages sent and received and accounts for the shorter missions that weren't completed.

(1) A comparison of the number of messages per hour across the alternatives for the platoon leader position is shown in figure 6. For the platoon leader position the total number of messages transmitted in the all M1A2 case was 11% less and 3% less than alternatives 2 and 3 respectively. The total number of messages was less even though the number of IVIS messages transmitted in alternative 1 was greater than the other alternatives. The number of IVIS messages sent and received by the platoon leader declined as the number of IVIS equipped tanks in the platoon declined. The platoon leader in alternatives 2 and 3 would receive a digital message from the company commander and was required to translate that to voice for transmission to the surviving platoon members. A similar occurrence was noted in NTC rotation 93-10 where two company commanders were equipped with M1A2 tanks but the remainder of the company was equipped with M1A1 tanks. These company commanders had difficulty commanding their units via voice while simultaneously communicating to battalion digitally. The number of messages received at the platoon leader position for alternative 1 was 3% greater when compared to alternative 2 and 1% greater when compared to alternative 1.

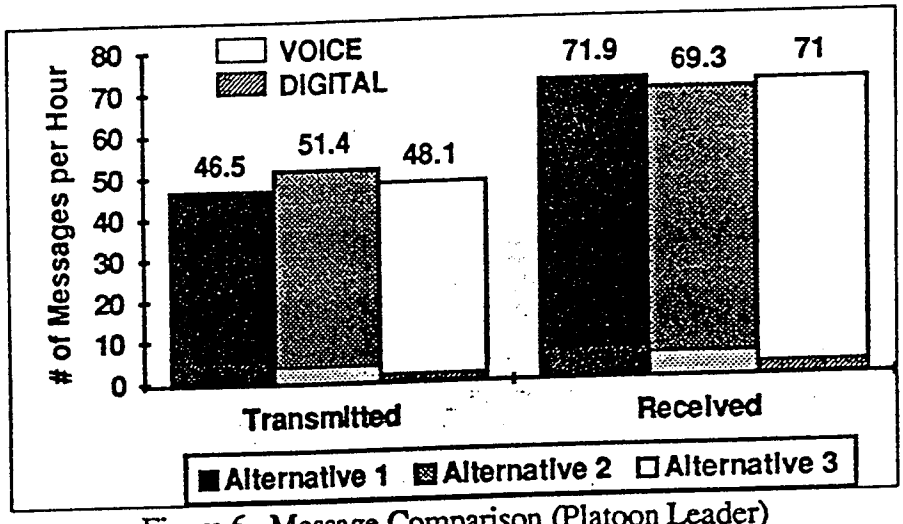


Figure 6. Message Comparison (Platoon Leader)

(2) The examination of the average number of messages sent and received per hour by the company commander is shown in figure 7. It is important to note that the messages shown here were only for the company commander communicating with his subordinate platoon leaders. There were no messages from either voice or IVIS recorded from battalion or above, as these echelons were not played in these simulation trials. The data shown in the figure reflects very little variation in messages sent and received by the company commander level for alternative 1 when compared to the other alternatives. Again the number of IVIS messages decreased as the number of IVIS equipped M1A2 tanks decreased in the company.

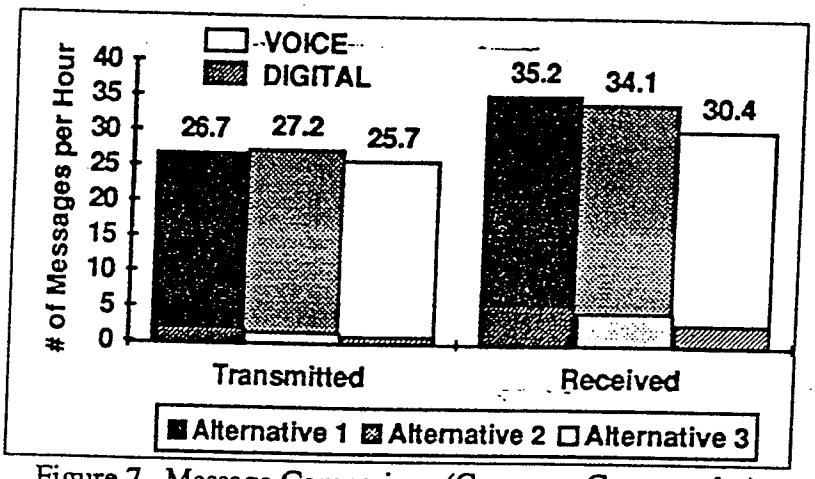


Figure 7. Message Comparison (Company Commander)

g. The number of targets engaged is difficult to determine due to the automatic data collection being unable to pair the target and firing vehicles unless the round strikes the target. Therefore the number of targets engaged was examined by looking at the number of hits achieved by the manned platoon for all missions. Figure 8 displays the increase in the number of target hits as the number of M1A2 tanks is increased in the platoon. There is a 23% decrease in the number of hits achieved by the alternative 2 equipped platoon when compared to the all M1A2 equipped platoon. A 28% decrease is noted when comparing alternative 1 and alternative 3. This increase in hitting efficiency is attributable to the speed with which the M1A2 fires at targets, the increased survivability of the M1A2 due to killing the enemy faster and the increased number of thermal viewers available to the platoon.

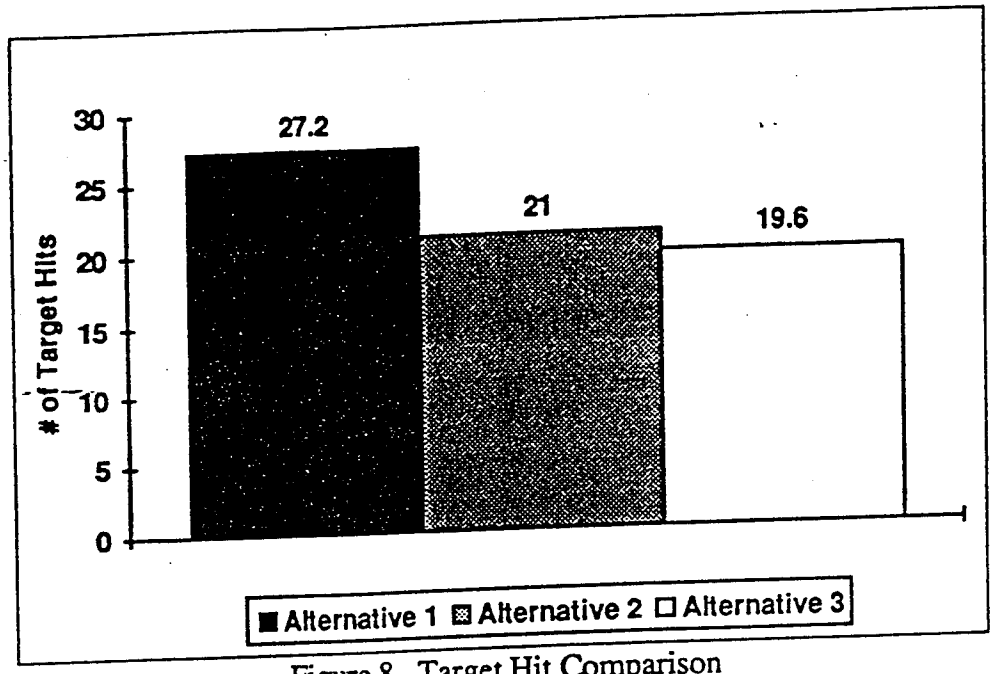


Figure 8. Target Hit Comparison

h. Tank engagement range distribution was examined using the range at which the manned platoon engaged and hit targets over all exercises. The results of this examination are shown in figure 9. Notice that alternative 1, the all M1A2 alternative, has significantly more hits than the other alternatives between the ranges of 1600 and 2800 meters. The tight distribution of hits by alternative 1 is also an indication that this alternative dealt with the threat faster and with more efficiency than the other two alternatives.

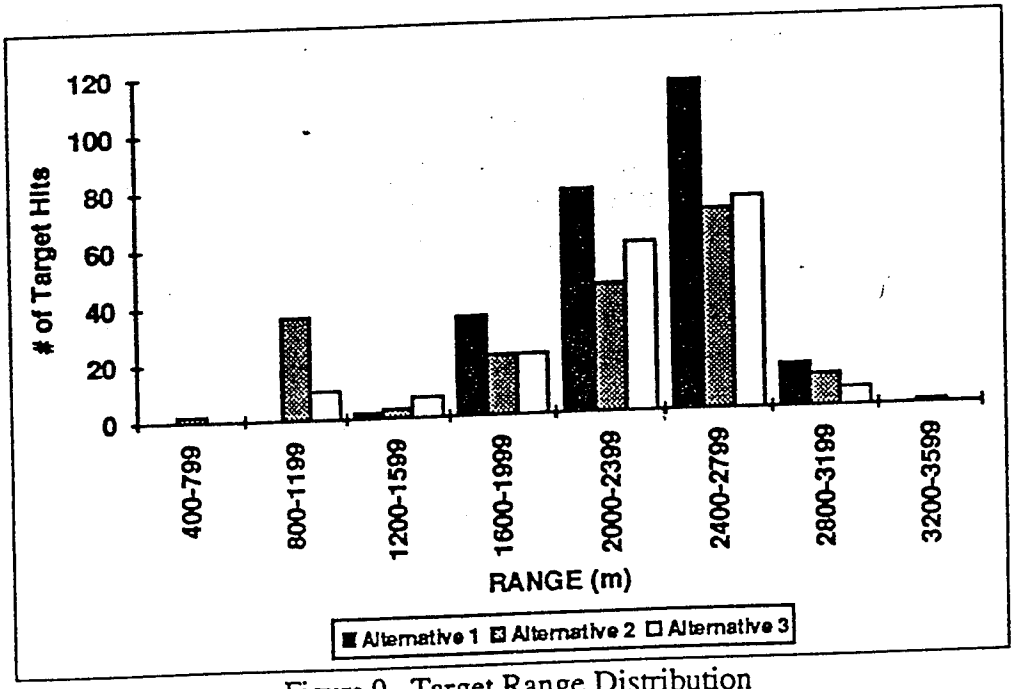


Figure 9. Target Range Distribution

i. Only a subjective analysis of the effects of the platoon leader getting killed can be made. The platoon leader, following the doctrine taught to him was always leading his platoon. This positioning was responsible for his vehicle being destroyed first in six of the 27 exercises. In one exercise where the company was configured as alternative 2, the platoon leader and platoon sergeant vehicles were destroyed early in the exercise and the platoon sergeant's wingman attempted to lead the company to the battle position for the defensive operation. The wingman became misoriented due to the lack of a POSNAV device, admitted he was lost and the scenario was ended with the company unable to reach the battle position. In a number of other cases, when the platoon leader was killed there was a significant pause by the platoon sergeant before he issued further instructions to the platoon. This happened regardless of whether the platoon sergeant was in an M1A1 or an M1A2 tank. This seemed realistic in that the platoon sergeant wanted to be certain of his next movement and needed time to collect his thoughts and act upon them. There were only a couple of instances where the platoon leader who always had IVIS failed to notify his M1A1 equipped platoon members of their ultimate destination or the location of the checkpoints they were to pass through. Usually the platoon members would call the platoon leader and request this information when it had not been supplied.

8. CONCLUSIONS.

a. The warfighting aspect of differential distribution concept shows the all M1A2 equipped force to be the best alternative.

b. The all M1A2 company achieved a higher loss exchange ratio than either of the other alternatives. The LER of alternative 1 was 11% greater than alternative 2 and 28% greater than alternative 3.

c. The M1A2 pure company had a 22% greater mission completion rate than alternatives 2 and 3.

d. The all M1A2 alternative was not too burdensome in terms of the number of messages sent and received at the platoon leader and company commander position.

e. Alternative 1, the all M1A2 company, achieved more hits per mission. The hits achieved were primarily distributed between 1600 and 2800 meters.

9. RECOMMENDATION. On the basis of the warfighting results of this evaluation and the logistics, maintenance, training and operations results from the Differential Distribution White Paper, the following is recommended. Distribute the M1A2 as a one for one replacement of the M1A1 in armor and cavalry units.

APPENDIX A

DIFFERENTIAL DISTRIBUTION STUDY PLAN

23 April 1993

SUBJECT: Differential Distribution Study Plan

1. Purpose. To conduct a differential distribution experiment in the SIMNET environment to support a decision on the distribution of the M1A2 tank.

2. References.

a. CSA message to HQ TRADOC, 9 November 1992.

b. HQ TRADOC message to USAARMC, 10 November 1992.

c. Differential Distribution White Paper, U. S. Army Armor Center, 19 March 1993.

3. Terms of Reference.

a. Problem. The CSA has asked TRADOC to "look at the utilization of the M1A2 as a leader's tank vice an everyman's tank". The CG TRADOC subsequently directed that Fort Knox investigate this concept. This experiment is required to provide information concerning the relative merits and drawbacks of the differential distribution concept.

b. Impact of the Problem. Failure to extract information about the differential distribution concept would require the M1A2 distribution decision be made without pertinent information. This may result in a costly decision from an equipment and force effectiveness viewpoint.

c. Objectives.

(1) To determine and compare the effectiveness of the control platoon and company with the alternative distributions of M1A2 tanks.

(2) To determine the workload of the platoon leader and company commander in each alternative.

(3) To examine the impact of varying the number of POSNAV, CITV, and IVIS equipped tanks in each alternative.

(4) To examine the impact on command and control when the platoon leader/company commander is killed within the tactical scenario.

d. Scope.

(1) The experiment will be based on the AirLand Battle Doctrine of FM 100-5.

(2) The experiment will be limited to a defensive operation employing the tank company in rolling woodland type terrain.

(3) The experiment will employ the tank systems in a tank pure force against a combined arms threat force.

e. Assumptions.

(1) AirLand Battle Doctrine as described in FM 100-5 will remain valid during the time frame under consideration.

(2) The threat data used in the study are representative.

f. Essential Elements of Analysis (EEA). The EEA are structured to answer the study issues.

(1) What is the difference in mission completion rate for the alternative equipped tank companies?

(2) What is the difference in force effectiveness for the alternative equipped tank companies?

(3) What is the difference in workload at the platoon leader and company commander position for the alternatives?

(4) What is the impact on command and control when the platoon leader or company commander is killed?

g. Constraints.

(1) Due to the limited number of simulators available to be manned, only one platoon of the company will be represented by manned simulators. The remaining two platoons will be played by semi-automated forces (SAFOR).

(2) The evaluation will limit itself to one type of mission due to the time constraints and the amount of training that will be made available to the crews manning the simulators.

(3) A limited number of iterations of each alternative will be attempted.

h. Alternatives.

(1) This evaluation will examine three alternative distributions of the M1A2 tank within the company. These alternative distributions are as follows:

(a) All tanks in the company are M1A2 tanks.

(b) The company commander, platoon leaders and platoon sergeants are equipped with M1A2 tanks. The remainder of the company is equipped with M1A1 tanks.

(c) Only the company commander and platoon leaders are equipped with M1A2 tanks. The remainder of the company is equipped with M1A1 tanks.

(2) The alternatives are graphically depicted in figure 1. The shading over the center platoon and company commander is to depict that only those vehicles will be manned with soldiers. The other platoons will be simulated through SAFOR.

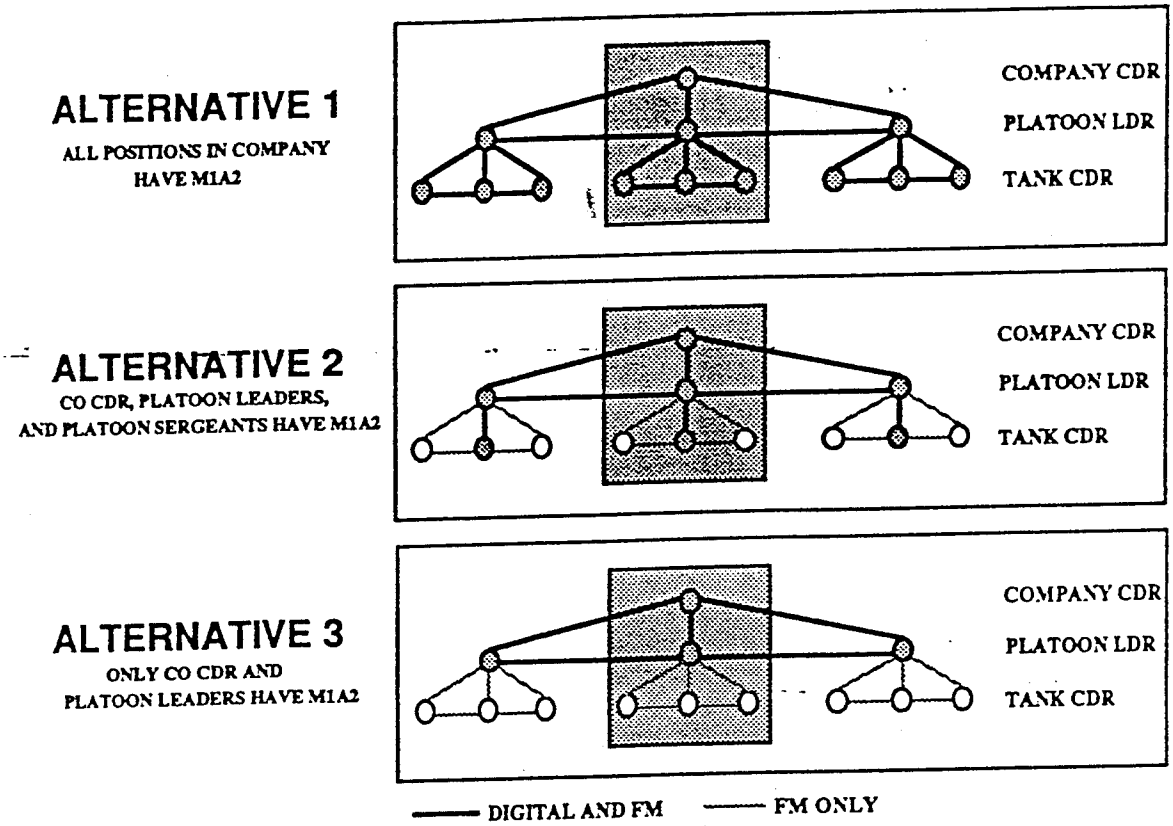


Figure 1. Alternatives

i. Measures of Effectiveness and Performance.

(1) General. Measures of Effectiveness (MOE) are employed to quantify the contributions of each alternative in terms of force effectiveness. Measures of Performance (MOP) are employed to quantify the performance of each alternative tank force.

(2) Measure of Effectiveness. The MOE that will be employed in this evaluation to assess force effectiveness is as follows:

$$\text{Loss Exchange Ratio (LER)} = \frac{\text{Number of Threat Systems Killed by U.S. Tanks}}{\text{Number of U.S. Tanks Killed by Threat Systems}}$$

(3) Measures of Performance. The following are examples of MOP that will be used in this evaluation:

(a) Mission completion rate.

(b) Messages received by company commander.

(c) Messages received by platoon leader.

(d) Messages sent by company commander.

(e) Messages sent by platoon leader.

(f) Number of targets engaged.

(g) Tank engagement range distribution.

(h) Accuracy of maneuver.

(4) Other measures. Other MOE and MOP may be necessary to the evaluation and will be added as required. Judgmental evaluation will be used to answer those EEA which cannot be addressed through the given MOE, MOP or other measures established for the evaluation. An after action questionnaire will be administered to all player personnel to gain insights into the military utility of the proposed alternatives.

4. Environment and Threat. The alternative tank companies will be limited to the Fort Knox environment. This is due to the limited terrain databases available within SIMNET and the requirement for the SAFOR to communicate digitally with the SIMNET network. The threat will be constrained to that which is available within SIMNET.

5. Analysis Methodology.

a. Overall study methodology. The methodology to accomplish this evaluation will be limited to examining the operational effectiveness of each of the alternative tank distributions within the man-in-the-loop simulation of the Mounted Warfare Test Bed.

b. Operational effectiveness methodology.

(1) Purpose. The operational effectiveness analysis will provide answers to the EEA which in turn supports the study objectives. The purpose of the operational effectiveness analysis is to determine the impact of the alternative tank distributions on the tank force.

(2) Scenarios. A series of special constructed situations created for the SIMNET gaming will be used to test the operational effectiveness of the alternative tank distributions. These scenarios will be based on Fort Knox terrain due to model and time limitations. These scenarios will be based on current AirLand Battle doctrine.

(3) Effectiveness Evaluation. The operational effectiveness evaluation will be conducted in the following manner.

(a) Step 1. Review all previously completed M1A2 man-in-the-loop simulations, field test, etc. for applicability to the current study effort. Where appropriate, results of these exercises will be used to document the force effectiveness of the M1A2 tank company.

(b) Step 2. Conduct Force-on-Force simulation in the SIMNET environment of the Mounted Warfare Test Bed to establish the force effectiveness of the alternative tank companies. This portion of the evaluation will consider each alternative distribution separately. A limited number of iterations (<= 5) will be performed for each alternative distribution. These iterations will be random to minimize the test participant learning curve effect on the results. Data will be collected during these simulation runs to support each of the MOP listed in this plan in order to address each EEA. The proposed run matrix for these simulation runs is shown in figure 2.

SIMULATION RUN MATRIX		
RUN #	ALTERNATIVE	SCENARIO
1	PILOT	TRAINING
2	PILOT	TRAINING
3	3	2
4	2	1
5	2	2
6	1	4
7	3	1
8	2	3
9	3	4
10	1	3
11	1	2
12	1	1
13	3	3
14	3	2
15	1	2
16	2	4
17	2	2

Figure 2. Simulation Run Matrix

c. Military judgment and subject matter expertise will be incorporated within the effectiveness analysis to provide the most complete presentation possible of the alternative distributions of M1A2 tanks.

6. Support Requirements.

a. TRADOC System Manager-Armored Gun System. Assist in procuring a table top IVIS for use in the evaluation.

b. 194th Armored Brigade. Provide player personnel for manning the simulators and table top IVIS used in the evaluation.

c. 16th Cavalry Squadron. Provide New Equipment Training Team personnel to train the 194th personnel in the use of the M1A2 simulators.

d. Simulation Division, Directorate of Combat Developments.

(1) Wargaming and Simulation Branch. Prepare four evaluation and one training scenario for use in SIMNET environment. These scenarios will include the operations orders, fragmentary orders, and all overlays.

(2) Mounted Warfare Test Bed. Place the evaluation in the schedule for the mounted warfare test bed facility. Aid in the preparation of the statement of work for the site contractor. Assist in coordination of the contract with the site contractor.

e. Analysis Division, Directorate of Combat Developments.

(1) Develop the analysis plan for the differential distribution concept evaluation program.

(2) Provide oversight for the conduct of the evaluation during the simulation exercises.

(3) Provide analytic support for the CEP.

(4) Prepare and publish a final report on the conduct of the evaluation.

7. Administrative.

a. Evaluation Schedule.

(1) White Paper Complete - 19 March 93

(2) CEP Approved - 2 April 93

(3) CEP In Progress Review - 26 April 93

(4) Analysis Plan Approved - 30 April 93

(5) Scenarios Completed - 15 June 93

(6) CEP In Progress Review - 1 July 93

(7) Crew Training Begins - 12 July 93

(8) Production Simulation Runs - 20 July 93

(9) CEP Report - 27 August 93

b. Points of Contact.

(1) USAARMC.

(a) Scenarios. MAJ M. Smith, 4-3776.

(b) Mounted Warfare Test Bed. CPT L. Hu, 942-1092.

(c) Analysis. Mr. L. Vowels, 4-3648.

(d) 16th Cavalry, NET Team. MAJ Klazak, 4-5567/5530.

(e) 194th Armored Brigade. TBD.

(f) TRADOC System Manager, AGS. MSG Bliss, 4-2585.

(2) STRICOM. MAJ M. Saulibio, DSN 960-8806.

(3) Site Contractor (LORAL). Mr. Tom Radgowski, 942-1092.

APPENDIX B

SCENARIO OVERLAYS & OPERATION ORDERS

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION
SCENARIO 1

Company OPORD

1. SITUATION.

A. Enemy.

(1) Overview: The 25th Guards Tank Div (GTD) following a successful attack is establishing a hasty defense vic ES793972 in order to establish lines of communication and supply with its rear area. Enemy contact has been lost throughout the sector. The 25th GTD is believed to be in the Brigade sector, with the 1st Tank Regiment believed to be moving in the Battalion sector.

(2) Composition and Disposition: The 25th GTD consists of the 1st TR, 144th TR, the 146th TR, and the 140th MRR (BMP-3). The overall-strength of the division is 70-75%. The 1st, 144th and 146h TR's are equipped with Leopard II's and the 140th MRR with BMP-3's.

(3) Most Probable Course of Action: The 1st TR is currently moving in 1st Brigade's sector to establish hasty defensive positions in the vicinity of OBJ Gold; expect to be established within four hours and maintain posture for 24 hours to rearm and refit.

B. Friendly.

(1) Left - Charlie Company
(2) Right - Bravo Company
(3) Front - Brigade Scout Platoon
(4) Rear - 4th Bn, Delta Company and Mortars

C. Terrain and Weather.

(1) Terrain - Rolling hills with intermittent tree lines, excellent fields of fire.
(2) Weather - Clear and Hot with highs of 90° and lows of 72°.

2. MISSION. A Company attacks at 121900Jul2000 along AXIS Platinum to gain contact with enemy forces and destroy him. O/O, continue movement to contact to seize OBJ Diamond at ES76439360.

3. EXECUTION.

Commander's Intent. My intent is to move rapidly, gin contact with the enemy and destroy him before he has time to establish defensive positions.

A. Concept of the operation.

(1) Maneuver. A Company will move from AA Nickel to the LD along specified platoon routes to the company attack position short of LD Copper. We will execute the LD and conduct movement to contact along AXIS Platinum at 121900Jul2000. The company will move in traveling overwatch in a company wedge with 2nd platoon as the lead element. Scouts will conduct a zone reconnaissance 4-6 km forward of the Bn to PL Bronze. Charlie Company will be the left flank guard. Bravo Company will be the right flank guard. Fourth Bn., along with Delta Company are in reserve. Mortars will trail Delta Company.

O/O, A Company will continue the attack to OBJ Diamond. We will execute PL Silver and occupy hasty defensive positions north of HWY 1238 on the objective, orienting northeast. Bravo Company will be orienting north; Charlie Company to the northeast in our support. Scouts will continue zone recon forward to LOA Uranium to gather enemy intelligence of MRR entering our zone.

(2) Fires. Annex B (Fire Support Overlay)

a. 1 - 14 has priority of FA within the Division.
b. Priority of FA fires - Scouts, Alpha Co, O/O to Company in contact.
c. Priority of Mortars - Alpha Co, Bravo Co, Charlie Co, Delta Co.

(3) Engineers.

a. POE - M, C/M, S.
b. POS - Alpha Company.

(4) Air Defense Artillery (ADA).

a. Weapon Control Status - Tight.
b. Air defense Warning - Yellow.
c. Priority of Protection - Alpha 2, 1, 3, Bravo, Charlie.

B. Subordinate Unit Instructions - per SOP.

C. Coordinating Instructions.

(1)
a. Report all phase lines and check points.
b. Report all enemy contact.
c. Go to bounding overwatch upon enemy contact.

(2) PIR.
a. Obstacle locations.
b. Report use of Leopard II tanks.

c. Any tanks in defensive positions.
d. All recon elements.

(3) MOPP level 0 in effect 250600JUL2000, MOPP 2 for personnel in the BSA.

(4) OEG is 70 cGY.

4. SERVICE SUPPORT. Per SOP.

5. COMMAND AND SIGNAL.

A. Command.

(1) Cdr will be with 2nd Plt.
(2) XO will be with 1st Plt.
(3) 1SG will be with Co. Trains.
(4) Succession of Command: CO, XO, 2, 1, 3.

B. Signal. Current CEOI is in effect.

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION
SCENARIO 1 EVENTS LIST

Phase 0: Planning and Preparation

Event 0.1 Co Cdr issues order to Plt Ldrs.

a. During this time the unit will conduct its Troop Leading Procedures. Bn will not allow the physical conduct of rehearsals, but the Co Cdr can make use of map or terrain model rehearsals. All graphics will be disseminated throughout the Co.

b. Platoon Leaders will back brief the Co Cdr. The S3 must monitor these brief backs to ensure that every leader has the proper concept.

Event 0.2 Unit is Initialized at Assembly Area.

Event 0.3 Unit Conducts Pre-combat Checks and Prepares to Move.

Pre-combat checks include:

(1) Posting all graphics on a map and inputting graphics into onboard displays (if equipped).

(2) Inputting way points for the driver (if equipped).

(3) Checking all systems.

(4) Reports Readiness Condition (REDCON) 1 before moving.

Event 0.4 Unit is initialized in assembly area facing towards the LD.

Phase 1: Unit Begins Movement To Contact.

Segment A: Unit Moves To Contact, Encounters Platoon (Located on/near OBJ ORE)

Event 1.1 Unit departs AA to the LD.

(1) Plt Ldr reports moving to LD to Co Cdr.

Event 1.2 Receives SPOTREP from Scouts.

"YO2, This is S11, SPOTREP, enemy activity vic ES784905, more to follow, over."

Segment B: Unit Receives FRAGO #1

Event 1.3 FRAGO #1

(1) Para 1: Plt size covering force vic grid ES783902 oriented South. Brigade continues MTC in zone to seize the main obj. The Brigade Commander intends to maintain momentum.

(2) Para 2: TF(-) will continue MTC.

(3) Para 3: Scheme of Maneuver: 1-14 conduct hasty attack through CP1 at ES77608786, CP2 at ES76588910 to destroy enemy platoon vic OBJ ORE. TF A will continue mission. O/O, 1-14 is TF reserve.

Event 1.4 Unit Crosses LD Copper

(1) Co Cdr reports crossing time.
(2) Unit is observed by Enemy.
(3) Unit fights to destroy enemy platoon.
a. Enemy engages with direct fire.
b. Unit conducts hasty attack using fire and maneuver.
c. Unit sends CONTACT Report.
d. Unit sends SPOTREP.

Phase 2: Continue Original Mission.

Segment A: Unit receives FRAGO #2

Event 2.1 FRAGO #2

(1) Para 1: Scouts Report 10 tracked vehicles moving southwest at a speed of 25-30 kph on HWY 1238 vic grid ES821978. Believed to be Tank Company attempting to stop our penetration. The commander intends to seize OBJ DIAMOND and destroy attacking enemy with economy of force.

(2) Para 2: BDE(-) Continues to move.

(3) Para 3: Scheme of Maneuver: 1-14 moves through CP3 and CP4 to assault OBJ DIAMOND. Co move on-line at CP4.

Segment B: Co occupies OBJ DIAMOND.

Event 2.2 Co arrives OBJ DIAMOND.

Event 2.3 Co conducts hasty occupation of OBJ DIAMOND.

Event 2.4 Co reports "Established" to controller.

Event 2.5 Co Receives Intel update on Tank Co.

(1) Company
(2) Turning Southwest
(3) Vic grid ES815045
(4) 25th 1st Tank Co
(5) Time Now
(6) Tanks (Leopard II)

Phase 3: Unit Receives FRAGO #3.

Segment A: Unit Receives FRAGO #3.

Event 3.1 FRAGO #3. Y02, This is Y03 move through CP5 to BP30 vicinity ES79309730 orienting North, over.

Event 3.2 Intel Report.

(1) Company
(2) Attacking, South 25-30 kph
(3) Vic grid ES809023
(4) 25th 1st Tank Co
(5) Time Now
(6) Tanks

Segment B: Co Occupies BP30.

Event 3.3 Co arrives BP30.

Event 3.4 Co established battle positions.

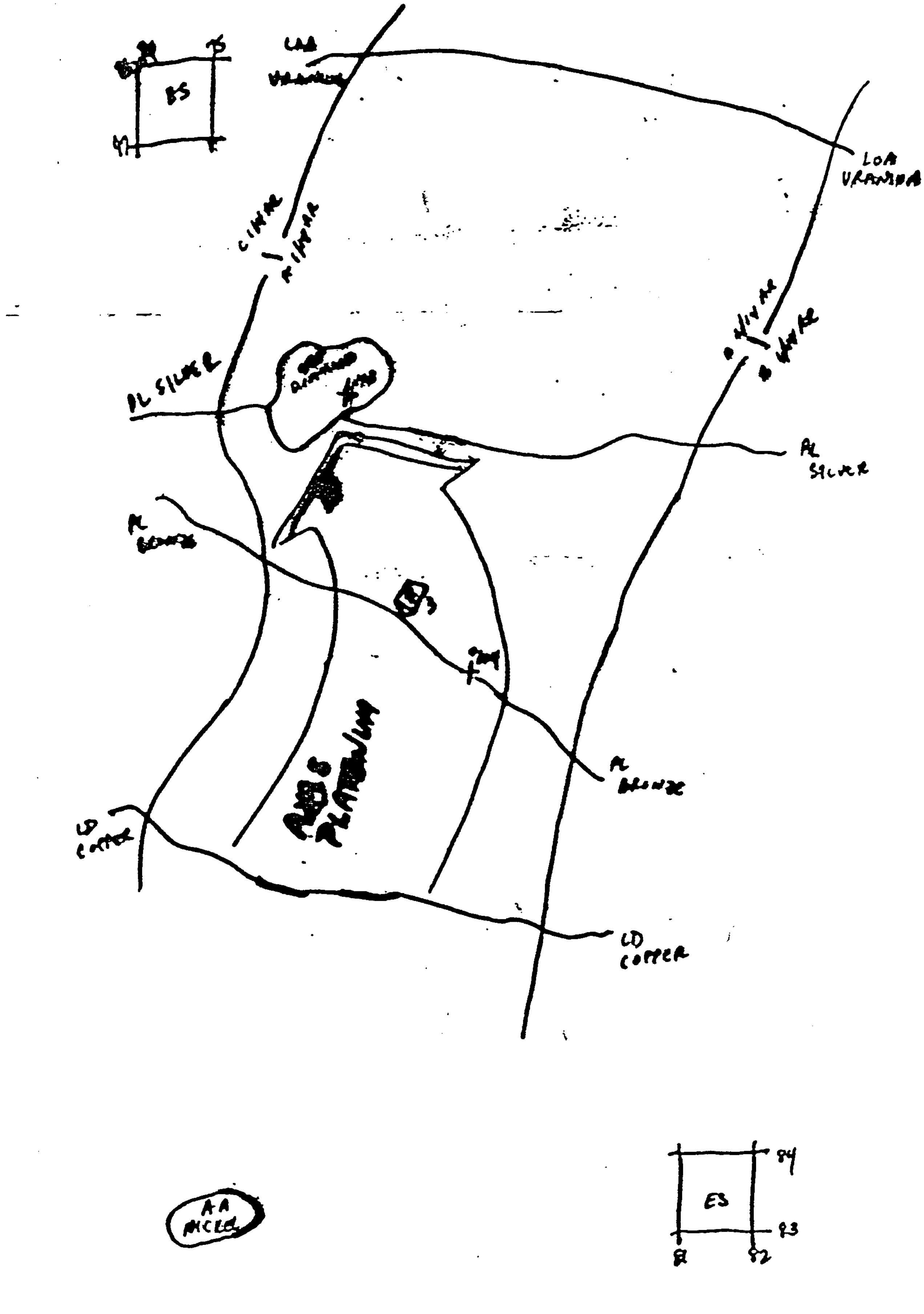
Segment C: Co Fights Attacking Enemy.

Event 3.5 Unit is observed by enemy.

Event 3.6 Unit fights to destroy enemy company.

(1) Unit engages with direct fire.
(2) Unit conducts hasty defense using fire and maneuver.
(3) Unit sends CONTACT report.
(4) Unit sends SPOTREP.

Segment D: Consolidation and Reorganization.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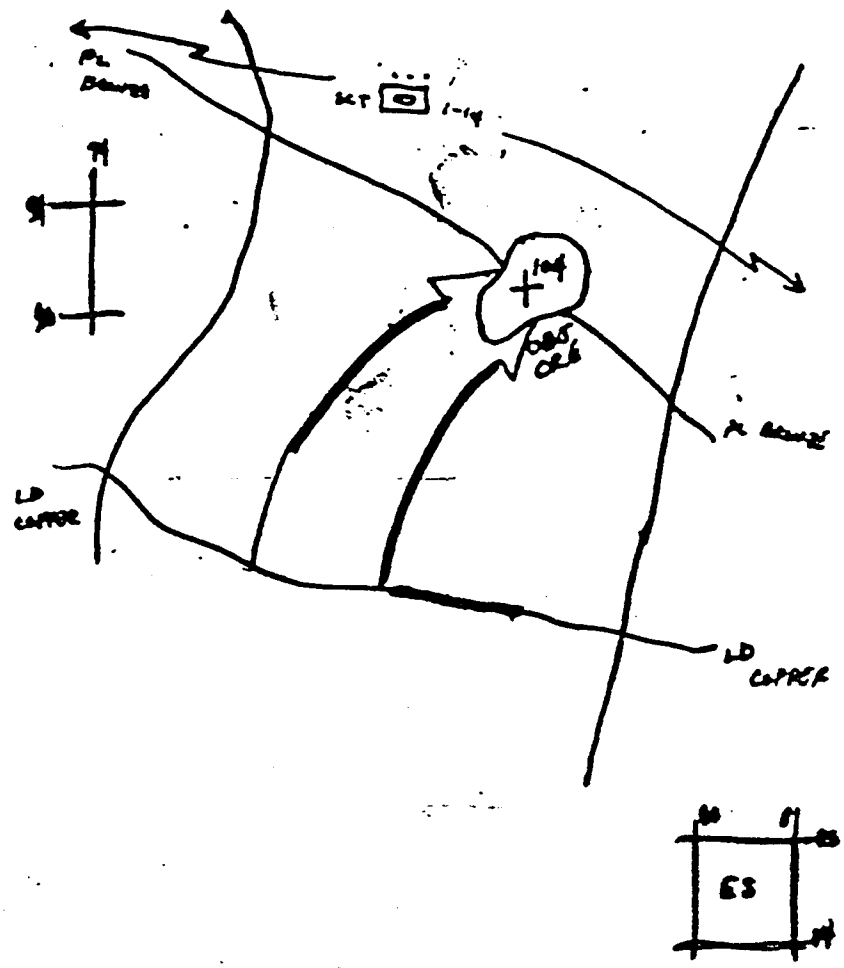

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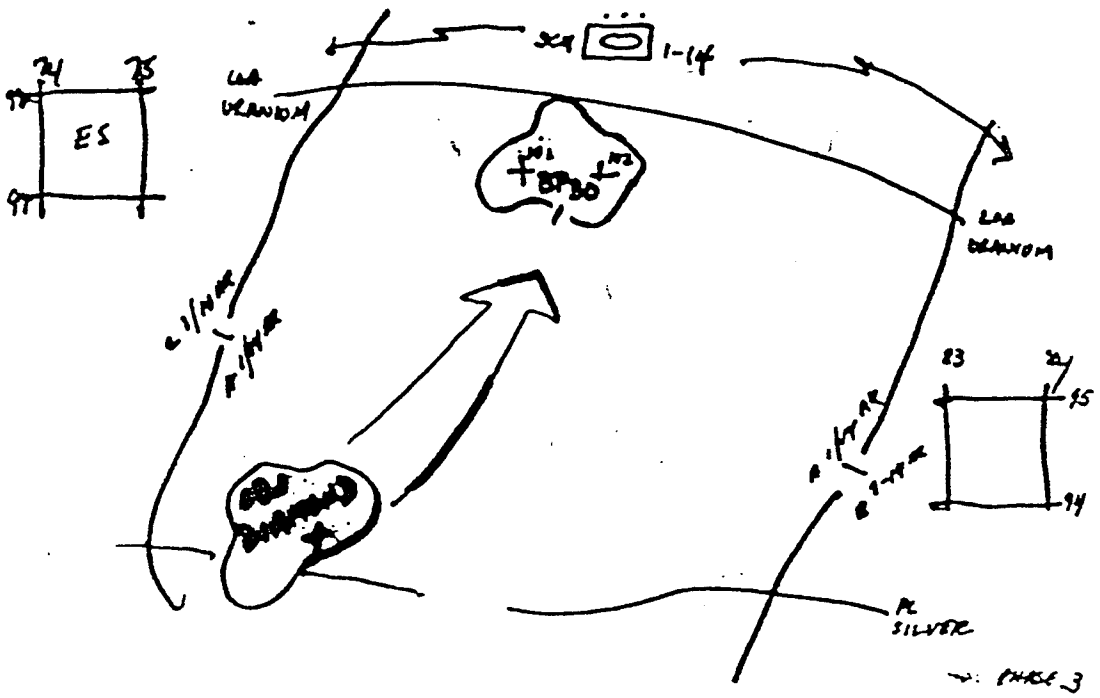


PHASE 3

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION

SCENARIO 2

Company OPORD

1. SITUATION.

A. Enemy.

(1) Overview: The 25th Guards Tank Div (GTD) following a successful attack is establishing a hasty defense vic ES839725 in order to establish lines of communication and supply with its rear area. Enemy contact has been lost throughout the sector. The 25th GTD is believed to be in the Brigade sector, with the 1st Tank Regiment believed to be moving in the Battalion sector.

(2) Composition and Disposition: The 25th GTD consists of the 1st TR, 144th TR, the 146th TR, and the 140th MRR (BMP-3). The overall strength of the division is 70-75%. The 1st, 144th and 146h TR's are equipped with Leopard II's and the 140th MRR with BMP-3's.

(3) Most Probable Course of Action: The 1st TR is currently moving in 1st Brigade's sector to establish hasty defensive positions in the vicinity of OBJ Seahorse; expect to be established within four hours and maintain posture for 24 hours to rearm and refit.

B. Friendly.

(1) Left - Charlie Company
(2) Right - Bravo Company
(3) Front - Brigade Scout Platoon
(4) Rear - 4th Bn, Delta Company and Mortars

C. Terrain and Weather.

(1) Terrain - Rolling hills with intermittent tree lines, excellent fields of fire.
(2) Weather - Clear and Hot with highs of 90° and lows of 72°.

2. MISSION. A Company will conduct a road march at 131900Jul2000 along AXIS Shark to establish hasty fighting positions to occupy and defend OBJ Seahorse at ES839725.

3. EXECUTION.

Commander's Intent. My intent is to move rapidly, gain contact with the enemy and destroy him before he has time to establish defensive positions.

A. Concept of the operation.

(1) Maneuver. A Company will move from AA Squid to the LD along specified platoon routes to the company attack position short of LD Dolphin. We will execute the LD and conduct a tactical road march along AXIS Shark at 131900Jul2000. The company will move in traveling overwatch in a company staggered column with 2nd platoon as the lead element. Scouts will conduct a zone reconnaissance 4-6 km forward of the Bn to PL Whale. Charlie Company will be the left flank guard. Bravo Company will be the right flank guard. Fourth Bn., along with Delta Company are in reserve. Mortars will trail Delta Company.

O/O, A Company will continue the attack to OBJ Seahorse. We will execute PL Minnow and occupy hasty defensive positions on the objective at ES839725, orienting southeast. Bravo Company will be orienting south; Charlie Company to the east in our support. Scouts will continue zone recon forward to LOA Octopus to gather enemy intelligence of MRR entering our zone.

(2) Fires. Annex B (Fire Support Overlay)

a. 1 - 14 has priority of FA within the Division.
b. Priority of FA fires - Scouts, Alpha Co, O/O to Company in contact.
c. Priority of Mortars - Alpha Co, Bravo Co, Charlie Co, Delta Co.

(3) Engineers.

a. POE - M, C/M, S.
b. POS - Alpha Company.

(4) Air Defense Artillery (ADA).

a. Weapon Control Status - Tight.
b. Air defense Warning - Yellow.
c. Priority of Protection - Alpha 2, 1, 3, Bravo, Charlie.

B. Subordinate Unit Instructions - per SOP.

C. Coordinating Instructions.

(1)
a. Report all phase lines and check points.
b. Report all enemy contact.
c. Go to bounding overwatch upon enemy contact.

(2) PIR.
a. Obstacle locations.
b. Report use of Leopard II tanks.

c. Any tanks in defensive positions.
d. All recon elements.

(3) MOPP level 0 in effect 260600JUL2000, MOPP 2 for personnel in the BSA.

(4) OEG is 70 cGY.

4. SERVICE SUPPORT. Per SOP.

5. COMMAND AND SIGNAL.

A. Command.

(1) Cdr will be with 2nd Plt.
(2) XO will be with 1st Plt.
(3) 1SG will be with Co. Trains.
(4) Succession of Command: CO, XO, 2, 1, 3.

B. Signal. Current CEOI is in effect.

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION
SCENARIO 2 EVENTS LIST

Phase 0: Planning and Preparation

Event 0.1 Co Cdr issues order to Plt Ldrs.

a. During this time the unit will conduct its Troop Leading Procedures. Bn will not allow the physical conduct of rehearsals, but the Co Cdr can make use of map or terrain model rehearsals. All graphics will be disseminated throughout the Co.

b. Platoon Leaders will back-brief the Co Cdr. The S3 must monitor these brief backs to ensure that every leader has the proper concept.

Event 0.2 Unit is Initialized at Assembly Area.

Event 0.3 Unit Conducts Pre-combat Checks and Prepares to Move.

Pre-combat checks include:

(1) Posting all graphics on a map and inputting graphics into onboard displays (if equipped).

(2) Inputting way points for the driver (if equipped).

(3) Checking all systems.

(4) Reports Readiness Condition (REDCON) 1 before moving.

Event 0.4 Unit is initialized in assembly area facing towards the LD.

Phase 1: Unit Begins Tactical Road March.

Segment A: Unit Moves, Encounters Platoon (Located on/near OBJ STINGRAY)

Event 1.1 Unit departs AA to the LD.

(1) Plt Ldr reports moving to LD to Co Cdr.

Event 1.2 Receives SPOTREP from Scouts.

"YO2, This is S11, SPOTREP, enemy activity vic ES845767, more to follow, over."

Segment B: Unit Receives FRAGO #1

Event 1.3 FRAGO #1

(1) Para 1: Plt size covering force vic grid ES845769 oriented North. Brigade continues road march in zone to occupy the main obj. The Brigade Commander intends to maintain momentum.

(2) Para 2: TF(-) will continue road march.

(3) Para 3: Scheme of Maneuver: 1-14 conduct hasty attack through CP1 at ES839806, CP2 at ES836781 to destroy enemy platoon vic OBJ Stingray. TF A will continue mission. O/O, 1-14 is TF reserve.

Event 1.4 Unit Crosses LD Dolphin

(1) Co Cdr reports crossing time.
(2) Unit is observed by Enemy.
(3) Unit fights to destroy enemy platoon.
a. Enemy engages with direct fire.
b. Unit conducts hasty attack using fire and maneuver.
c. Unit sends CONTACT Report.
d. Unit sends SPOTREP.

Phase 2: Continue Original Mission.

Segment A: Unit receives FRAGO #2

Event 2.1 FRAGO #2

(1) Para 1: Scouts Report 10 tracked vehicles moving West at a speed of 25-30 kph on main road South of OBJ Seahorse vic grid ES852701. Believed to be Tank Company attempting to stop our occupation of objective. The commander intends to seize OBJ Seahorse and destroy attacking enemy with economy of force.

(2) Para 2: BDE(-) Continues to move.

(3) Para 3: Scheme of Maneuver: 1-14 moves through CP3 at ES833758 and CP4 at ES842747 orienting South to hold OBJ Seahorse.

Segment B: Co occupies OBJ Seahorse.

Event 2.2 Co arrives OBJ Seahorse.

Event 2.3 Co conducts hasty occupation of OBJ Seahorse.

Event 2.4 Co reports "Established" to controller.

Event 2.5 Co Receives Intel update on Tank Co.

(1) Company
(2) Turning East 25-30 kph
(3) Vic grid ES885615
(4) 25th 1st Tank Co
(5) Time Now
(6) Tanks (Leopard II)

Phase 3: Unit Receives FRAGO #3.

Segment A: Unit Receives FRAGO #3.

Event 3.1 FRAGO #3. Y02, This is Y03 move through CP5 at ES871704 to occupy BP B3C vicinity ES901696 orienting South, over.

Event 3.2 Intel Report.

(1) Company
(2) Attacking, North 25-30 kph
(3) Vic grid ES898648
(4) 25th 1st Tank Co
(5) Time Now
(6) Tanks

Segment B: Co Occupies BP B3C.

Event 3.3 Co arrives BP B3C.

Event 3.4 Co established battle positions.

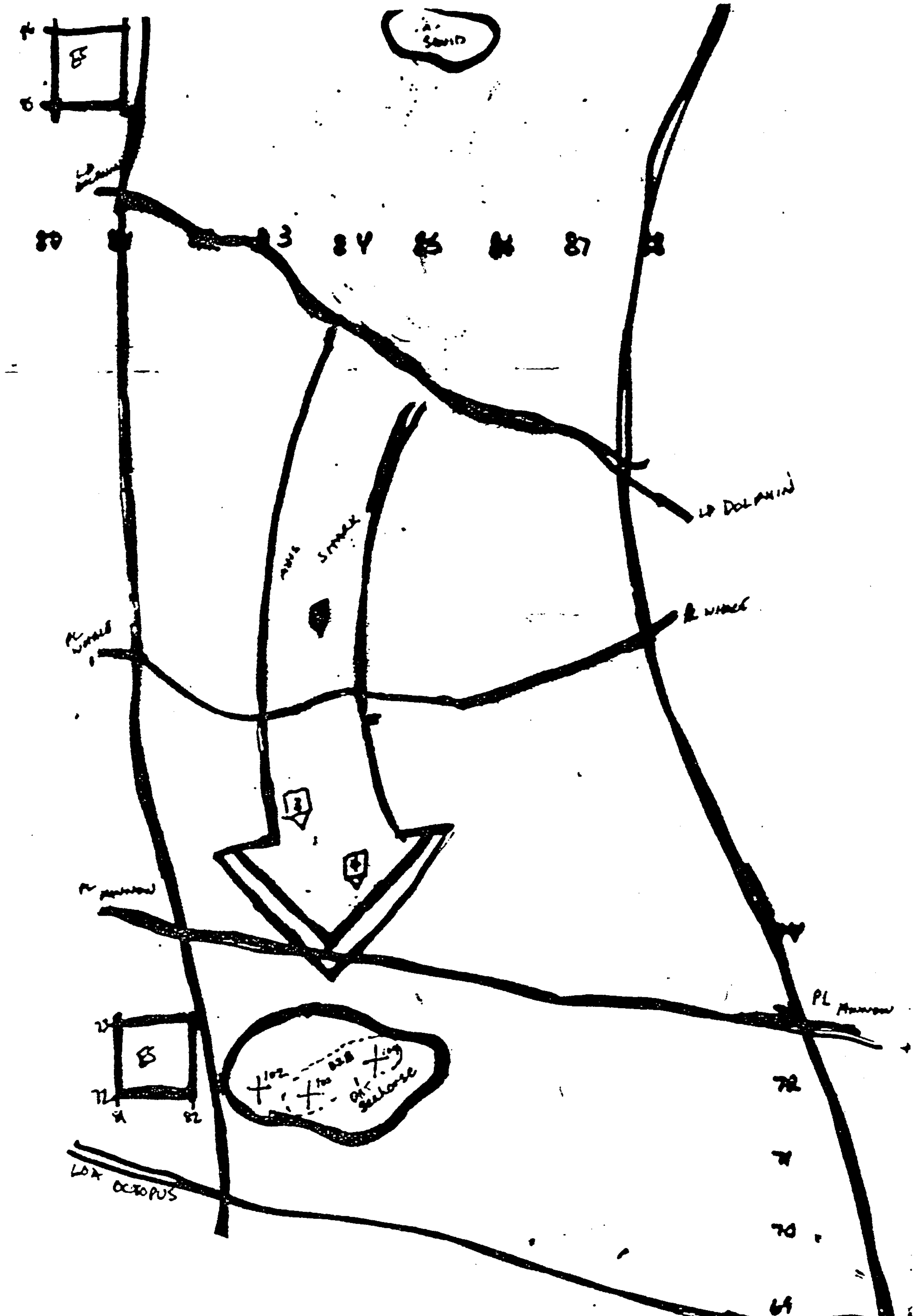
Segment C: Co Fights Attacking Enemy.

Event 3.5 Unit is observed by enemy.

Event 3.6 Unit fights to destroy enemy company.

(1) Unit engages with direct fire.
(2) Unit conducts hasty defense using fire and maneuver.
(3) Unit sends CONTACT report.
(4) Unit sends SPOTREP.

Segment D: Consolidation and Reorganization.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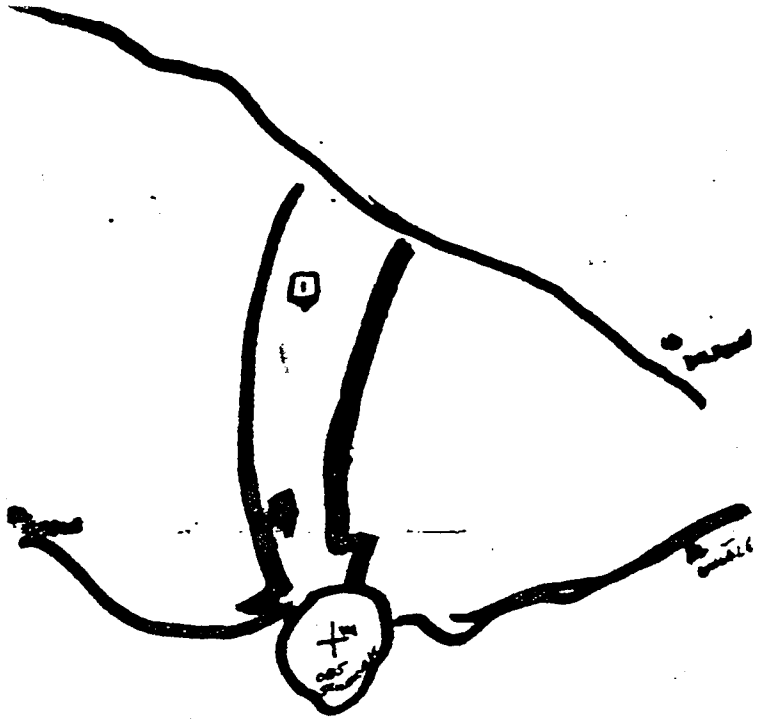


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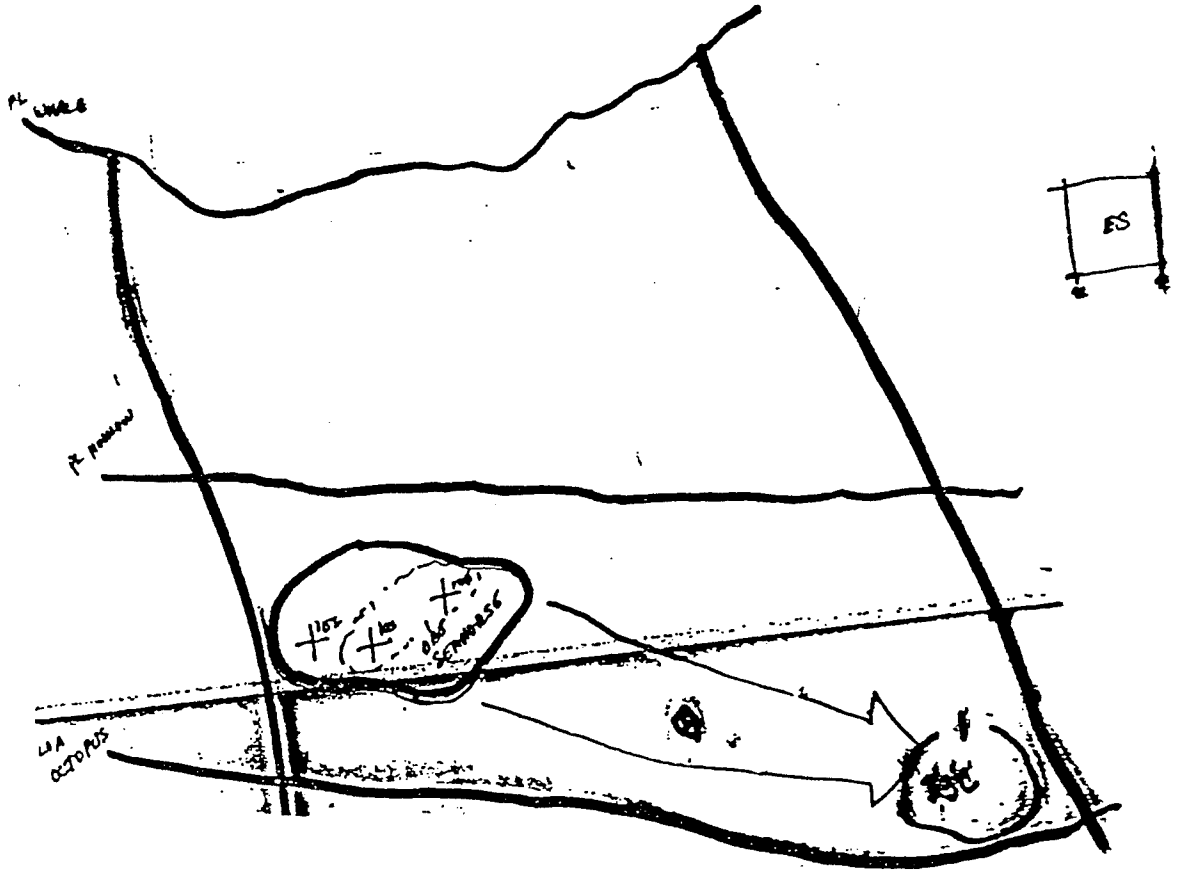
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DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION
SCENARIO 3

Company OPORD

1. SITUATION.

A. Enemy.

(1) Overview: The 25th Guards Tank Div (GTD) following a successful attack is establishing a hasty defense vic ES650960 in order to establish lines of communication and supply with its rear area. Enemy contact has been lost throughout the sector. The 25th GTD is believed to be in the Brigade sector, with the 1st Tank Regiment believed to be moving in the Battalion sector.

(2) Composition and Disposition: The 25th GTD consists of the 1st TR, 144th TR, the 146th TR, and the 140th MRR (BMP-3). The overall strength of the division is 70-75%. The 1st, 144th and 146h TR's are equipped with Leopard II's and the 140th MRR with BMP-3's.

(3) Most Probable Course of Action: The 1st TR is currently moving in 1st Brigade's sector to establish hasty defensive positions in the vicinity of OBJ Seahorse; expect to be established within four hours and maintain posture for 24 hours to rearm and refit.

B. Friendly.

(1) Left - Charlie Company
(2) Right - Bravo Company
(3) Front - Brigade Scout Platoon
(4) Rear - 4th Bn, Delta Company and Mortars

C. Terrain and Weather.

(1) Terrain - Rolling hills with intermittent tree lines, excellent fields of fire.
(2) Weather - Clear and Hot with highs of 90° and lows of 72°.

2. MISSION. A Company will conduct a road march at 141900Jul2000 along AXIS Chicago to establish hasty fighting positions to occupy and defend OBJ Baltimore at ES650960.

3. EXECUTION.

Commander's Intent. My intent is to move rapidly, gain contact with the enemy and destroy him before he has time to establish defensive positions.

A. Concept of the operation.

(1) Maneuver. A Company will move from AA Miami to the LD along specified platoon routes to the company attack position short of LD Dolphin. We will execute the LD and conduct a tactical road march along AXIS Chicago at 141900Jul2000. The company will move in traveling overwatch in a company staggered column with 2nd platoon as the lead element. Scouts will conduct a zone reconnaissance 4-6 km forward of the Bn to PL Detroit. Charlie Company will be the left flank guard. Bravo Company will be the right flank guard. Fourth Bn., along with Delta Company are in reserve. Mortars will trail Delta Company.

O/O, A Company will continue the movement to OBJ Baltimore. We will execute PL Atlanta and PL Detroit and occupy hasty defensive positions on the objective at ES650960, orienting north. Bravo Company will be orienting southwest; Charlie Company to the northeast in our support. Scouts will continue zone recon forward to LOA Houston to gather enemy intelligence of MRR entering our zone.

(2) Fires. Annex B (Fire Support Overlay)

a. 1 - 14 has priority of FA within the Division.
b. Priority of FA fires - Scouts, Alpha Co, O/O to Company in contact.
c. Priority of Mortars - Alpha Co, Bravo Co, Charlie Co, Delta Co.

(3) Engineers.

a. POE - M, C/M, S.
b. POS - Alpha Company.

(4) Air Defense Artillery (ADA).

a. Weapon Control Status - Tight.
b. Air defense Warning - Yellow.
c. Priority of Protection - Alpha 2, 1, 3, Bravo, Charlie.

B. Subordinate Unit Instructions - per SOP.

C. Coordinating Instructions.

(1)
a. Report all phase lines and check points.
b. Report all enemy contact.
c. Go to bounding overwatch upon enemy contact.

(2) PIR.
a. Obstacle locations.
b. Report use of Leopard II tanks.
c. Any tanks in defensive positions.

d. All recon elements.

(3) MOPP level 0 in effect 270600JUL2000, MOPP 2 for personnel in the BSA.

(4) OEG is 70 cGY.

4. SERVICE SUPPORT. Per SOP.

5. COMMAND AND SIGNAL.

A. Command.

(1) Cdr will be with 2nd Plt.
(2) XO will be with 1st Plt.
(3) 1SG will be with Co. Trains.
(4) Succession of Command: CO, XO, 2, 1, 3.

B. Signal. Current CEOI is in effect.

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION
SCENARIO 3 EVENTS LIST

Phase 0: Planning and Preparation

Event 0.1 Co Cdr issues order to Plt Ldrs.

a. During this time the unit will conduct its Troop Leading Procedures. Bn will not allow the physical conduct of rehearsals, but the Co Cdr can make use of map or terrain model rehearsals. All graphics will be disseminated throughout the Co.

b. Platoon Leaders will back brief the Co Cdr. The S3 must monitor these brief backs to ensure that every leader has the proper concept.

Event 0.2 Unit is Initialized at Assembly Area.

Event 0.3 Unit Conducts Pre-combat Checks and Prepares to Move.

Pre-combat checks include:

(1) Posting all graphics on a map and inputting graphics into onboard displays (if equipped).

(2) Inputting way points for the driver (if equipped).

(3) Checking all systems.

(4) Reports Readiness Condition (REDCON) 1 before moving.

Event 0.4 Unit is initialized in assembly area facing towards the LD.

Phase 1: Unit Begins Tactical Road March.

Segment A: Unit Moves

Event 1.1 Unit departs AA to the LD.

(1) Plt Ldr reports moving to LD to Co Cdr.

Event 1.2 Receives SPOTREP from Scouts.

"YO2, This is S11, SPOTREP, scouts have identified enemy tanks vic ET744037, more to follow, over."

Segment B: Unit Receives FRAGO #1

Event 1.3 FRAGO #1

(1) Para 1: Enemy force vic grid ET744037 oriented South. Brigade continues road march in zone to occupy the main obj. The Brigade Commander intends to maintain momentum.

(2) Para 2: TF(-) will continue road march.

(3) Para 3: Scheme of Maneuver: 1-14 move to and occupy BP C53 vic ES728955 from the South and orient North. Do not go through CP2. Report when established.

Event 1.4 Unit Occupies BP C53

Event 1.5 Co established battle positions.

Segment C: Co Fights Attacking Enemy.

Event 1.6 Unit is observed by enemy.

Event 1.7 Unit fights to destroy enemy company.

(1) Unit engages with direct fire.
(2) Unit conducts hasty defense using fire and maneuver.
(3) Unit sends CONTACT report.
(4) Unit sends SPOTREP.

Segment D: Consolidation and Reorganization.

Phase 2: Continue Original Mission.

Segment A: Unit receives FRAGO #2

Event 2.1 FRAGO #2

(1) Para 1: Scouts Report tracked vehicles moving Northeast at a speed of 25-30 kph on main road going North/South through OBJ Baltimore vic grid ES650960. Believed to be Tank Company attempting to stop our occupation of objective. The commander intends to seize OBJ Baltimore and destroy attacking enemy with economy of force.

(2) Para 2: BDE(-) Continues to move.

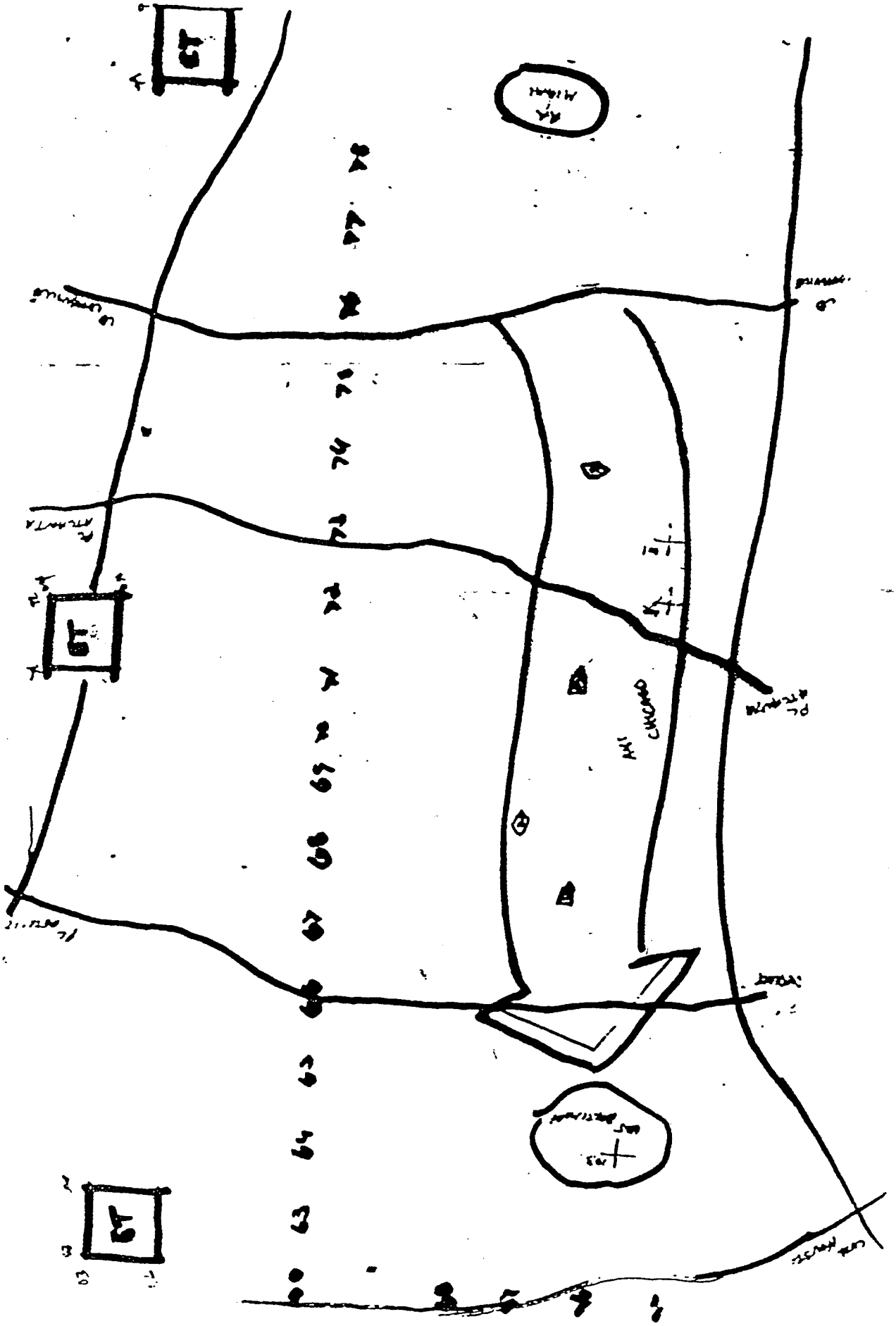
(3) Para 3: Scheme of Maneuver: 1-14 moves through CP3 at ES713967, CP4 at ES694973, and CP5 at ES685966 to occupy OBJ Baltimore.

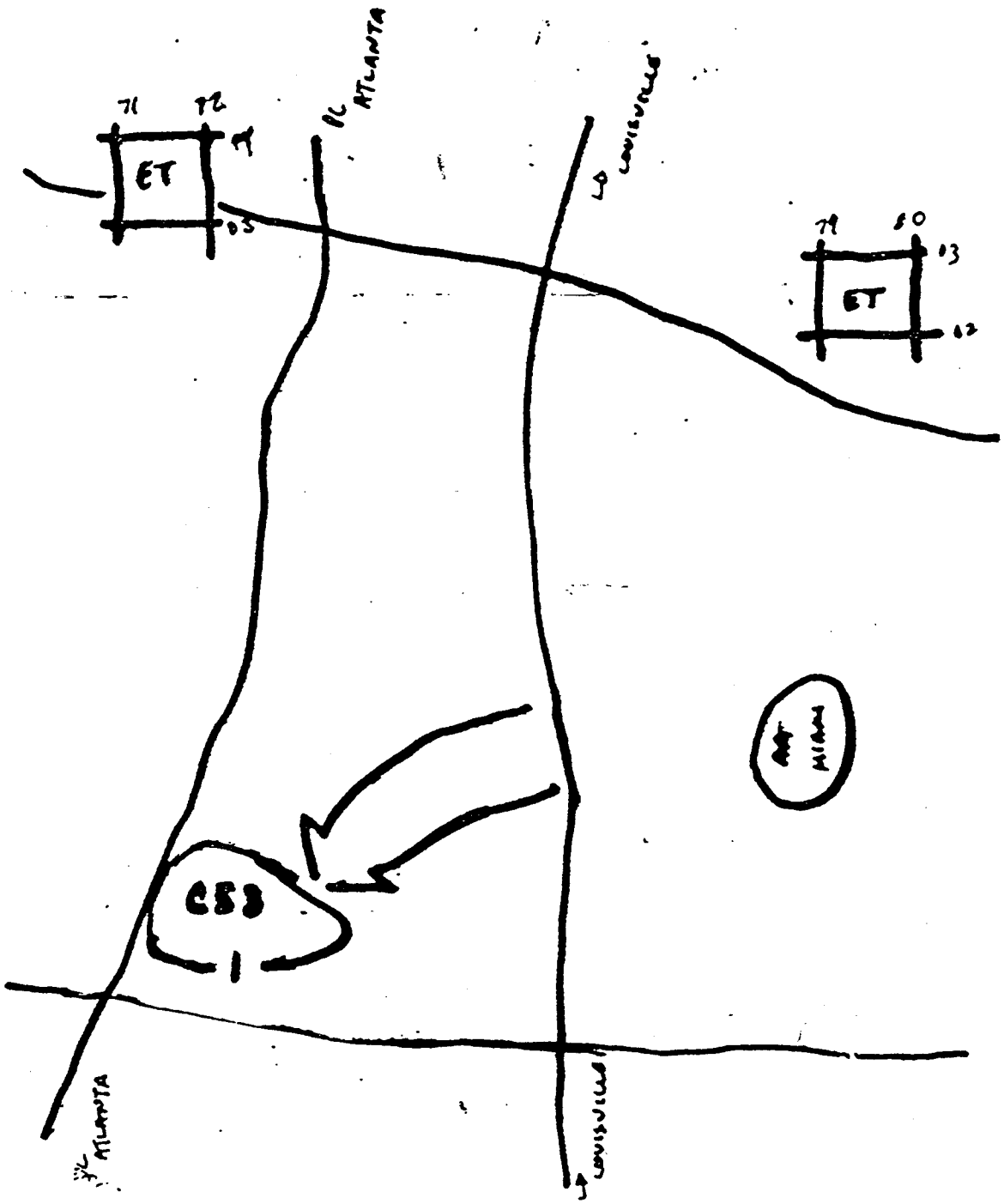
Segment B: Co occupies OBJ Baltimore.

Event 2.2 Co arrives OBJ Baltimore.

Event 2.3 Co conducts hasty occupation of OBJ Baltimore.

Event 2.4 Co reports "Established" to controller.

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DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION

SCENARIO 4

Company OPORD

1. SITUATION.

A. Enemy.

(1) Overview: The 25th Guards Tank Div (GTD) following a successful attack is establishing a hasty defense vic ES934932 in order to establish lines of communication and supply with its rear area. Enemy contact has been lost throughout the sector. The 25th GTD is believed to be in the Brigade sector, with the 1st Tank Regiment believed to be moving in the Battalion sector.

(2) Composition and Disposition: The 25th GTD consists of the 1st TR, 144th TR, the 146th TR, and the 140th MRR (BMP-3). The overall strength of the division is 70-75%. The 1st, 144th and 146h TR's are equipped with Leopard II's and the 140th MRR with BMP-3's.

(3) Most Probable Course of Action: The 1st TR is currently moving in 1st Brigade's sector to establish hasty defensive positions in the vicinity of OBJ Hawaii; expect to be established within four hours and maintain posture for 24 hours to rearm and refit.

B. Friendly.

(1) Left - Charlie Company
(2) Right - Bravo Company
(3) Front - Brigade Scout Platoon
(4) Rear - 4th Bn, Delta Company and Mortars

C. Terrain and Weather.

(1) Terrain - Rolling hills with intermittent tree lines, excellent fields of fire.
(2) Weather - Clear and Hot with highs of 90° and lows of 72°.

2. MISSION. A Company will conduct a road march at 151900Jul2000 along AXIS Kentucky to establish hasty fighting positions to occupy and defend OBJ Hawaii at ES934932.

3. EXECUTION.

Commander's Intent. My intent is to move rapidly, gain contact with the enemy and destroy him before he has time to establish defensive positions.

A. Concept of the operation.

(1) Maneuver. A Company will move from AA Maryland to the LD along specified platoon routes to the company attack position short of LD Texas. We will execute the LD and conduct a tactical road march along AXIS Kentucky at 151900Jul2000. The company will move in traveling overwatch in a company staggered column with 2nd platoon as the lead element. Scouts will conduct a zone reconnaissance 4-6 km forward of the Bn to PL Virginia. Charlie Company will be the left flank guard. Bravo Company will be the right flank guard. Fourth Bn., along with Delta Company are in reserve. Mortars will trail Delta Company.

O/O, A Company will continue movement southeast to OBJ Hawaii. We will execute PL Florida and PL Virginia and occupy hasty defensive positions on the objective at ES934932, orienting southwest. Bravo Company will be orienting southeast; Charlie Company to the west in our support. Scouts will continue zone recon forward to LOA Nevada to gather enemy intelligence of MRR entering our zone.

(2) Fires. Annex B (Fire Support Overlay)

a. 1 - 14 has priority of FA within the Division.
b. Priority of FA fires - Scouts, Alpha Co, O/O to Company in contact.
c. Priority of Mortars - Alpha Co, Bravo Co, Charlie Co, Delta Co.

(3) Engineers.

a. POE - M, C/M, S.
b. POS - Alpha Company.

(4) Air Defense Artillery (ADA).

a. Weapon Control Status - Tight.
b. Air defense Warning - Yellow.
c. Priority of Protection - Alpha 2, 1, 3, Bravo, Charlie.

B. Subordinate Unit Instructions - per SOP.

C. Coordinating Instructions.

(1)
a. Report all phase lines and check points.
b. Report all enemy contact.
c. Go to bounding overwatch upon enemy contact.

(2) PIR.
a. Obstacle locations.
b. Report use of Leopard II tanks.

c. Any tanks in defensive positions.
d. All recon elements.

(3) MOPP level 0 in effect 280600JUL2000, MOPP 2 for personnel in the BSA.

(4) OEG is 70 cGY.

4. SERVICE SUPPORT. Per SOP.

5. COMMAND AND SIGNAL.

A. Command.

(1) Cdr will be with 2nd Plt.
(2) XO will be with 1st Plt.
(3) 1SG will be with Co. Trains.
(4) Succession of Command: CO, XO, 2, 1, 3.

B. Signal. Current CEOI is in effect.

DIFFERENTIAL DISTRIBUTION CONCEPT EVALUATION
SCENARIO 4 EVENTS LIST

Phase 0: Planning and Preparation

Event 0.1 Co Cdr issues order to Plt Ldrs.

a. During this time the unit will conduct its Troop Leading Procedures. Bn will not allow the physical conduct of rehearsals, but the Co Cdr can make use of map or terrain model rehearsals. All graphics will be disseminated throughout the Co.

b. Platoon Leaders will back brief the Co Cdr. The S3 must monitor these brief backs to ensure that every leader has the proper concept.

Event 0.2 Unit is Initialized at Assembly Area.

Event 0.3 Unit Conducts Pre-combat Checks and Prepares to Move.

Pre-combat checks include:

(1) Posting all graphics on a map and inputting graphics into onboard displays (if equipped).

(2) Inputting way points for the driver (if equipped).

(3) Checking all systems.

(4) Reports Readiness Condition (REDCON) 1 before moving.

Event 0.4 Unit is initialized in assembly area facing towards the LD.

Phase 1: Unit Begins Tactical Road March.

Segment A: Unit Moves, Encounters Platoon (Located on/near OBJ Georgia)

Event 1.1 Unit departs AA to the LD.

(1) Plt Ldr reports moving to LD to Co Cdr.

Event 1.2 Receives SPOTREP from Scouts.

"YO2, This is S11, SPOTREP, enemy activity vic ES901941, more to follow, over."

Segment B: Unit Receives FRAGO #1

Event 1.3 FRAGO #1

(1) Para 1: Plt size covering force vic grid ES878949 oriented North. Brigade continues road march in zone to occupy the main obj. The Brigade Commander intends to maintain momentum.

(2) Para 2: TF(-) will continue road march.

(3) Para 3: Scheme of Maneuver: 1-14 conduct hasty attack through CP2 at ES887997, CP4 at ES889975 to destroy enemy platoon vic OBJ Georgia. TF A will continue mission. O/O, 1-14 is TF reserve.

Event 1.4 Unit Crosses LD Texas

(1) Co Cdr reports crossing time.
(2) Unit is observed by Enemy.
(3) Unit fights to destroy enemy platoon.
a. Enemy engages with direct fire.
b. Unit conducts hasty attack using fire and maneuver.
c. Unit sends CONTACT Report.
d. Unit sends SPOTREP.

Event 1.5 Co Receives Intel update on Tank Co.

(1) Company
(2) Turning South 25-30 kph
(3) Vic grid ES975874
(4) 25th 1st Tank Co
(5) Time Now
(6) Tanks (Leopard II)

Phase 3: Unit Receives FRAGO #3.

Segment A: Unit Receives FRAGO #3.

Event 3.1 FRAGO #3. Y02, This is Y03 move through CP6 at ES902942, CP7 at ES912929 and CP8 at ES929915 to occupy BP D4D vicinity ES932892 orienting South/Southwest, over.

Event 3.2 Intel Report.

(1) Company
(2) Attacking, Northwest 25-30 kph
(3) Vic grid ES955830
(4) 25th 1st Tank Co
(5) Time Now
(6) Tanks

Segment B: Co Occupies BP D4D.

Event 3.3 Co arrives BP D4D.

Event 3.4 Co established battle positions.

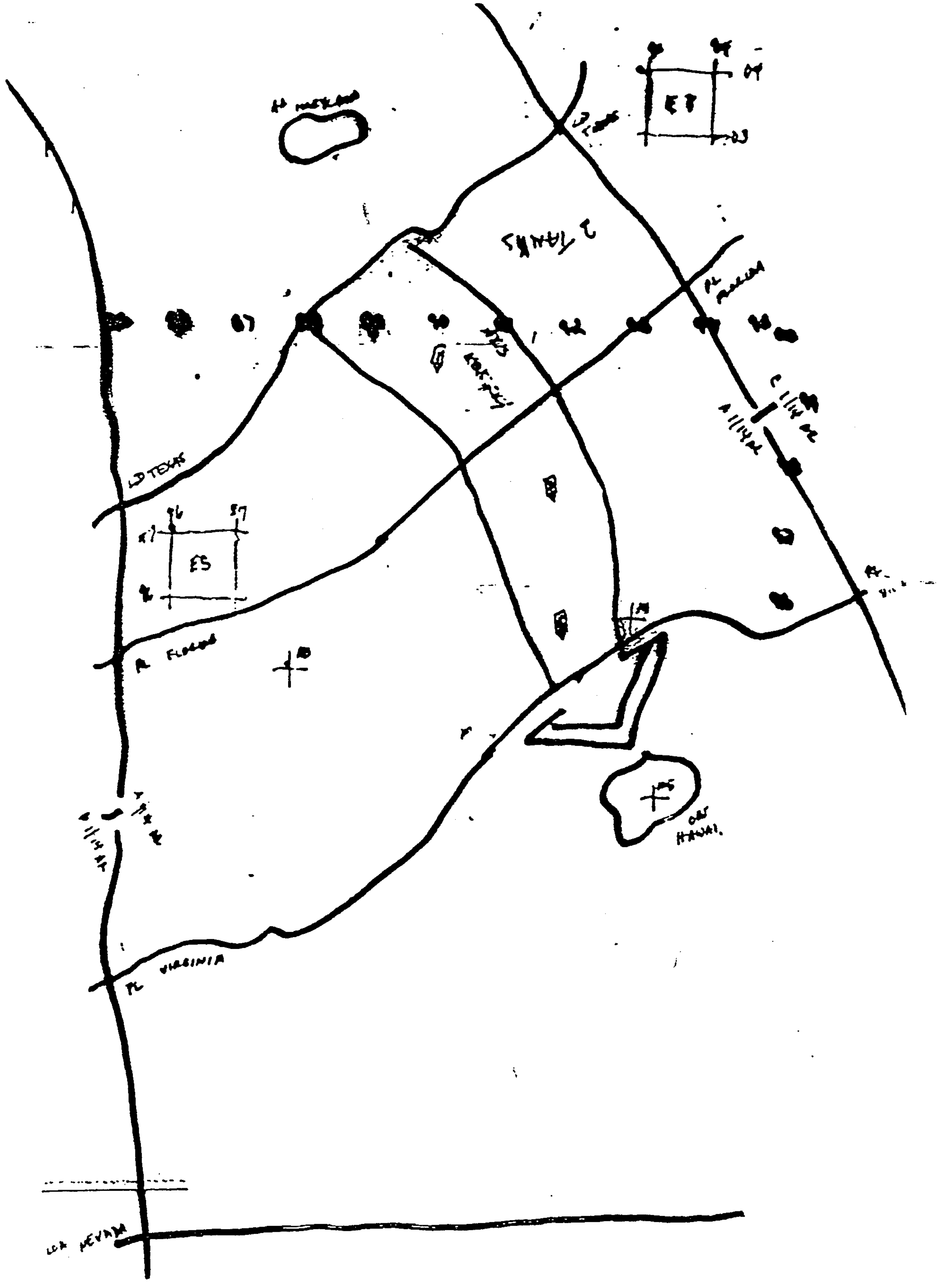
Segment C: Co Fights Attacking Enemy.

Event 3.5 Unit is observed by enemy.

Event 3.6 Unit fights to destroy enemy company.

(1) Unit engages with direct fire.
(2) Unit conducts hasty defense using fire and maneuver.
(3) Unit sends CONTACT report.
(4) Unit sends SPOTREP.

Segment D: Consolidation and Reorganization.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ES
PL FLORIDA
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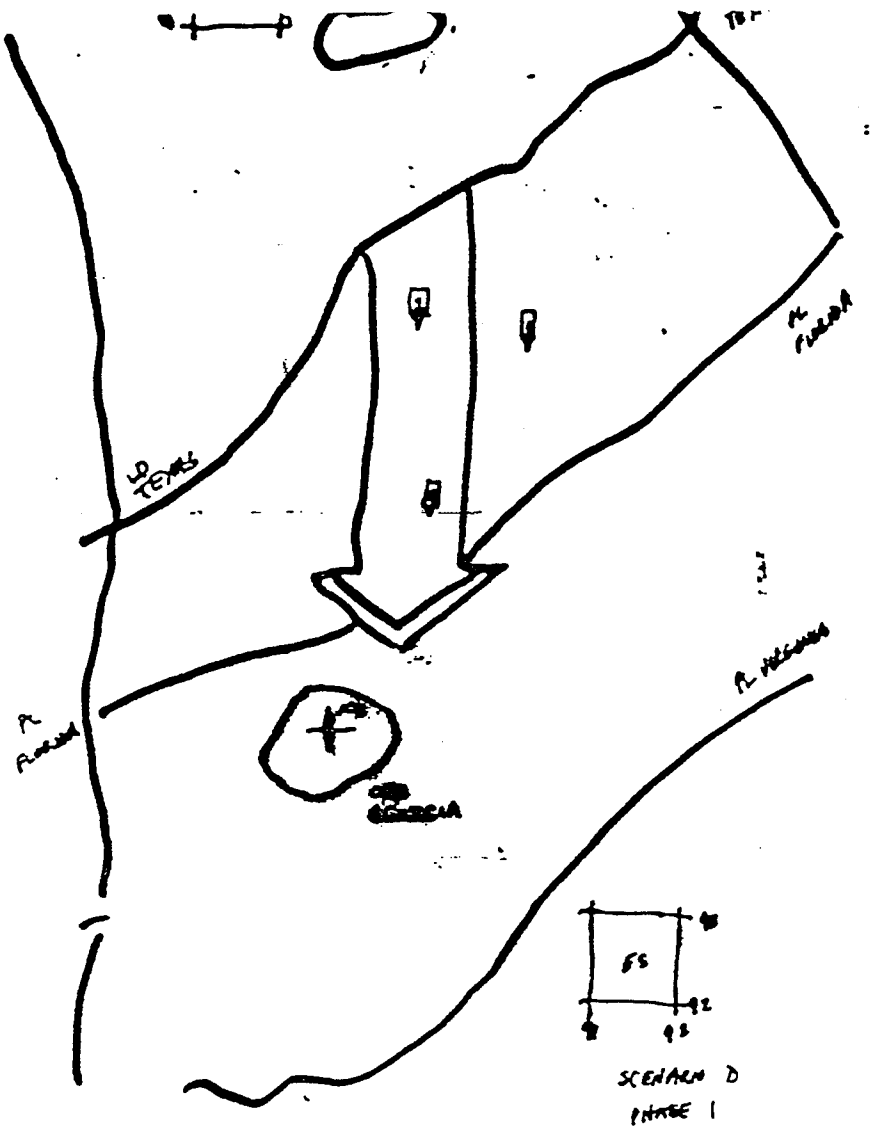
OBJ HAWAII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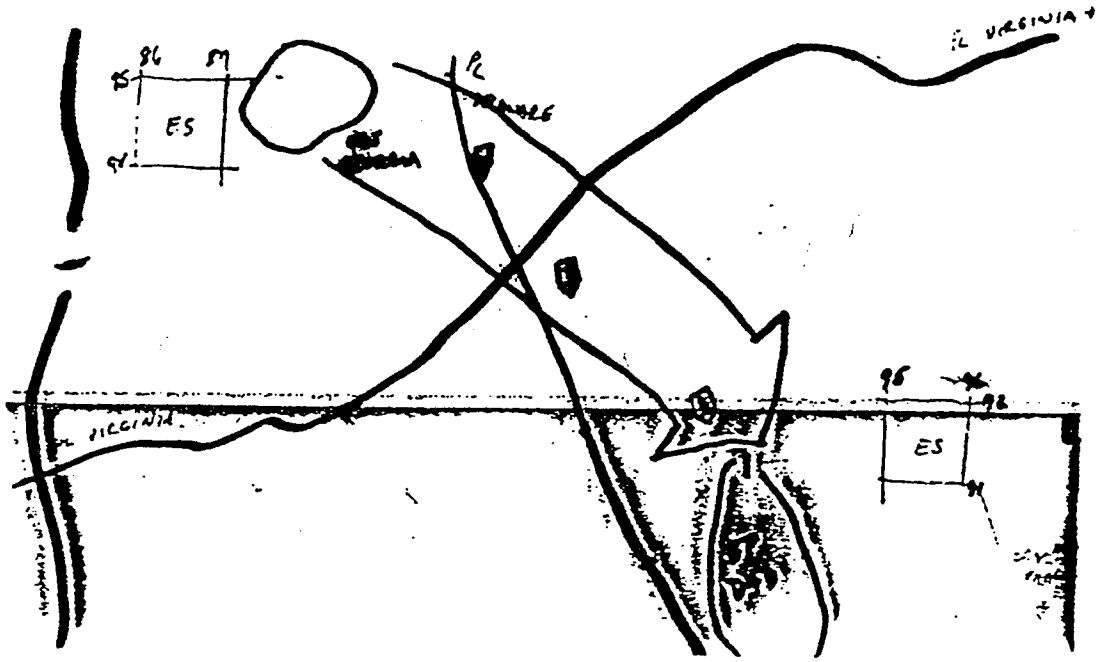
SCENARIO D
PHASE I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APPENDIX C

DIFFERENTIAL DISTRIBUTION WHITE PAPER

WHITE PAPER

ATZK-CDC
19 March 1993

SUBJECT: Differential Distribution

1. Introduction.

a. The concept of differential distribution distributes M1A2 tanks only in leadership positions instead of replacing every M1A1 tank in an armored force. This concept is an opportunity to provide either a given armor force structure with a digitized command and control capability at less cost or provide this digitization to a larger armor force structure with a given number of M1A2 tanks.

b. This paper outlines the advantages and disadvantages of employing the differential distribution concept in the armor force. The advantages and disadvantages primarily reside in the areas of logistics, maintenance, training and operations. This paper is confined to these areas.

2. Approach. The approach taken in this paper discusses the differential distribution concept under two different sets of assumptions.

a. The first list of assumptions (Case 1) is shown below.

- The number of tanks in the platoon numbers four.
- The platoon leader and platoon sergeant operate from M1A2 tanks and the two wingmen operate from M1A1 tanks.
- The company commander and executive officer operate from M1A2 tanks.

b. The second list of assumptions (Case 2) is shown here.

- The number of tanks in the platoon numbers three.
- The platoon leader operates from an M1A2 tank and the two wingmen operate from M1A1 tanks.
- The company commander and executive officer operate from M1A2 tanks.

3. Discussion.

a. General.

(1) The advantages of providing the armored force with a digital command and control capability are intuitive at this point. The ability to provide the armor force with the capability to quickly adjudge the situation and make good decisions based upon the current situation and distribute the decision is deemed to be an important improvement in the way we

conduct warfare. To date, however, this ability and its benefit have been examined in a limited manner through simulation.

(2) An important disadvantage of the concept is the M1A2 tank was not designed solely to provide an improved digital command and control capability. The M1A2 tank provides improvements in the areas of lethality through the commander's independent thermal viewer (CITV), situational awareness via the position location and navigation device (POSNAV), and reliability and maintainability with the data bus architecture. These features ensure that the M1A2 tank is a much more capable fighting vehicle than the M1A1. Distributing M1A2 tanks only to leaders deprives fightability from the remaining M1A1s in the platoon. This may outweigh the benefits of digitizing the battlefield.

b. Case 1.

(1) Advantages. A big advantage of equipping only the platoon leader and platoon sergeant with the M1A2 means that twice as many platoons can be equipped with the same number of M1A2 tanks. By equipping two tanks in the platoon the leader is provided a reasonable level of redundancy.

(2) Disadvantages.

(a) Logistics. Logistical support requirements for the unit with both M1A1 and M1A2 tanks will cause the number of class IX repair parts carried on the prescribed load list (PLL) and authorized stockage list (ASL) to increase at the organizational and direct support levels. This in turn could cause the requirement for transportation of the class IX repair parts to increase the number of vehicles and drivers required in the unit.

(b) Maintenance. Maintenance personnel would be required to maintain two different tanks. This would necessarily lead to less proficiency by the maintenance personnel and a less efficient maintenance effort. Separate diagnostic tools and special repair tools for both tanks would be required by the maintenance personnel.

(c) Training. New equipment training team support would increase due to the proliferation of M1A2 tanks across more of the armor force. Differential distribution would require each unit conduct crew training in a manner that would separate M1A1 and M1A2 crews except for the most common soldier tasks. This would have a significant impact on the platoon leader and platoon sergeant in planning and conducting training. If cross training of crews was attempted it would necessarily lead to less individual proficiency due to the differences in the crew station's of the two tanks. If the difference in the tanks causes the military occupational specialty (MOS) of the crewmen to be different this would have a negative impact on the training base. The effect of having two different types of tanks in the platoon and company would exacerbate the effects that crew turbulence would have on the unit. Training in battalions with mixed tanks would require each battalion have two different sets of training devices such as conduct of fire trainers (COFT), tank weapons gunner simulation systems (TWGSS), and close combat tactical trainers (CCTT). Additionally more training devices such as these would be required if M1A2

tanks were more widely distributed across the armor force. Gunnery range training would be more difficult due to the two tanks having different tables to be fired. This would exacerbate the range facility and time management problem for those in charge of training.

(d) Operations. The most significant operational problem associated with differential distribution is the obvious requirement to be able to communicate via two channels (i.e., FM voice and digital burst). Planning time for operations would be increased due to the commander or leader being required to process the digital information from higher into a form that could be passed to his unit either in hard copy or over FM voice radio. Additionally the commander or leader would spend a significant amount of time collating reports from his unit and preparing them in a digital format so they can be transmitted digitally up the chain of command. The time spent in collating the reports would degrade the commander's or leader's ability to "fight" the unit. Lethality enhancements, such as the CITV, will go unused due to demand on the commander's or leader's time for communications management, especially during times in contact when the CITV would be critical.

c. Case 2.

(1) Advantages. The only remaining advantage under this set of assumptions is the ability to provide the digital command and control capability to a larger portion of the armored force with the same number of M1A2 tanks or the ability to provide that capability to the same armored force with fewer M1A2 tanks.

(2) Disadvantages. All of the disadvantages associated with differential distribution in case 1 also apply for case 2. Additional problems are listed below.

(a) Logistics. There are no additional disadvantages associated with differential distribution in this area.

(b) Maintenance. Under this set of assumptions the tank platoon is less resilient when a maintenance or combat loss is sustained. This is due to the reduced number of tanks in the platoon and there being only one M1A2 in the platoon.

(c) Training. A glaring disadvantage associated with differential distribution under this set of assumptions is the lack of trained non-commissioned officers (NCO) to provide unit training on the M1A2 tank to the platoon leader and company commander. The maximum level of expertise for the NCO on the M1A2 tank would be the gunner position. Only one third of the gunners would have experience on the M1A2 tank and that experience would have taken place a number of years (3-4) prior. The new platoon leader will have to be fully trained in all aspects of the M1A2 tank in the basic course for there will be no NCO who has commanded the M1A2 tank in the unit.

(d) Operations. The lack of M1A2 redundancy within the platoon will force the platoon leader to operate with a backup system for the functions provided by the M1A2. This means the platoon leader would be required to keep a hard copy of all graphics and overlays in