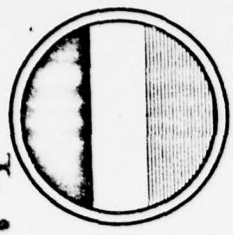

TRASANA

TECHNICAL REPORT 17-77

BATTLE SIMULATIONS SYSTEMS STUDY

FIRST BATTLE

AUGUST 1977

DEPARTMENT OF THE ARMY
US ARMY TRADOC SYSTEMS ANALYSIS ACTIVITY
WHITE SANDS MISSILE RANGE
NEW MEXICO 88002

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The findings in this report are not to be construed as an official Department of the Army position.

WARNING

Information and data contained in this document are based on the input available at the time of preparation. The results may be subject to change and should not be construed as representing US Army TRADOC position unless so specified.

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ACKNOWLEDGEMENT

This report was prepared by MAJ John H. Shuford and CPT Fredrick H. Knack. SP5 Benjamin Schilling assisted in the comparison of FIRST BATTLE with the Division Battle Model and in the review of the game rules. CPT Edward Smith, Mr. John Reiff and Mr. Ruben Bustillos assisted in the evaluation of the attack helicopter rules and effects. CPT Robert Foos, CPT Dana Newcombe, and Mr. Fernando Payan assisted in the evaluation of the electronic warfare rules. Mr. Raymond B. Heath acted as a study consultant.

TABLE OF CONTENTS

ABSTRACT

FIRST BATTLE is a low resolution battlefield simulation system designed to exercise division and corps staffs. The system was reviewed to provide an estimate of its credibility as a division level simulation and to provide specific comments on the Combat Results Tables. The results indicated that the simulation does provide a sound and credible means of running a division level Command Post Exercise with no modification of the basic rules or Combat Results Tables. Certain of the supplemental rules do require modification.

TECHNICAL REPORT 17-77

BATTLE SIMULATION SYSTEMS STUDY - FIRST BATTLE

1. INTRODUCTION

a. Purpose. This report presents the results of an evaluation of FIRST BATTLE, a low resolution, division level battlefield simulation developed by the US Army Combined Arms Center, Ft. Leavenworth, KS. The evaluation was performed under the purview of Project Coordination Sheet (PCS) Battle Simulations Systems: Weapons Effect Data and Game Rules, 20 August 1976 (Appendix A), as modified by verbal agreement with CATRADA on 27 July 1977 (Appendix B).

b. Objectives. The objectives of this study were:

(1) To provide an estimate of the credibility of FIRST BATTLE as a division level simulation.

(2) To provide specific comments on the Combat Results Tables and the Attack Helicopter portion of FIRST BATTLE.

c. Scope. The specific areas included in this evaluation are detailed in Memorandum for Record, FIRST BATTLE Evaluation Requirements, 1 August 1977 (Appendix E). These include a general review of the game rules with electronic warfare adaptations and a determination of the reasonableness of the Combat Results Tables over an extended period of time. Editorial comments on the instruction package have been specifically excluded except for cases where the interpretation of the rules, tables, etc., is in question.

2. METHODOLOGY

a. General. The Combat Results Tables (CRTs) were evaluated by comparing the known results of other simulations/tests with the results that would be found by using the CRTs for the same scenarios. The Close Assault and Direct Fire CRTs were compared with company/battalion combat in the Division Battle Model (DBM), the Indirect Fire CRT with 155mm fires in the Artillery Force Simulation Model (AFSM), and the Attack Helicopter CRT with the results of the Attack Helicopter Instrumented Test - Phase I (AHIT-I). The general game rules were reviewed for completeness, playability, and applicability by persons familiar with and skilled in the play of similar simulation systems (e.g., LONGTHRUST, CAMMS). Those who reviewed the Electronic Warfare and Attack Helicopter portions of the game have extensive

training and military experience, to include combat experience, in these fields as well as an overall knowledge of wargaming procedures. Although a complete exercise was not played by the authors of this analysis, portions of a FIRST BATTLE exercise played under field conditions by members of the Third Armored Cavalry Regiment were observed at Ft. Bliss, TX. Comments developed from this observation are included.

b. Game Rules. The analysis and evaluation of the FIRST BATTLE game rules is based on study of both the basic and supplemental rule sets, review of the television tape included in the instructional set, execution of a partial FIRST BATTLE game, and observation of a FIRST BATTLE exercise conducted by the Third Armored Cavalry Regiment, Ft. Bliss, TX on 10 August 1977. FIRST BATTLE rules were then compared to those of several commercially produced wargames including "Diplomacy" (Avalon Hill, Inc.), "NATO" and "Firefight" (Simulation Publications, Inc.), and "Star Web" (The Flying Buffalo Inc.) with the strengths and weaknesses of the FIRST BATTLE rules noted. Particular attention was paid to the Attack Helicopter and Electronic Warfare portion of the supplemental rules, with these being commented on separately in paragraph 3 of this report.

c. Direct Fire and Close Assault Combat Results Tables.

(1) The Direct Fire and Close Assault tables were evaluated by comparing the results of combat scenarios with the results of the same scenarios generated by the Division Battle Model. DBM is a computer assisted, manual wargame which models combat over a division front. It resolves to the Blue company/Red battalion level and assesses ground combat losses using a series of previously run, high resolution (CARMONETTE) simulations.

(2) DBM is not directly comparable to FIRST BATTLE since, in the former, the combat results are calculated deterministically for groupings of two to twenty opposing units over a one to three hour time span. To allow for the differences in structure between the two games, a set of rules for comparison was developed and is included as Appendix C. Development of the rules included reducing the FIRST BATTLE CRTs to single line, expected value tables, thus eliminating the need to replicate the comparison. Certain of the scenarios required the use of the Indirect Fire CRT for combat assessment; however, no attempt was made in this section to verify that table.

(3) The DBM scenario used for comparison was the first six hours of a battle between a reinforced Blue Mechanized Infantry Division in the active defense and a Red Combined Arms Army in a breakthrough attack on European terrain. The battle is similar to that used for the division level excursion of the Infantry Fighting Vehicle/Cavalry Fighting Vehicle (IFV/CFV)

Cost and Operational Effectiveness Analysis (U), as described in Volume II. Figure 1 is a schematic of the forces available at the beginning of the battle and includes portions of the corps covering force which have been withdrawn and made available to the Blue Division Commander. In addition to the forces shown, the scenario played two Red Tank Divisions as a second echelon force. Neither the Blue reserve nor the Red second echelon took part in the battle during the time period that was re-evaluated. Their availability and prospective later employment did, however, affect the tactical decisions of the two commanders. Diverging combat results which would have led to different tactical decisions required that the re-evaluation be stopped after six hours of battle rather than after the eight to twelve hours originally planned.

d. Indirect Fire. The indirect fire rules of play and assessment procedures were examined and compared with simulation experience acquired with the Artillery Force Simulation Model which plays a division's normal slice of field artillery against a threat combined arms army. A portion of AFSM's fire mission formulation module was used to determine the effectiveness of varying numbers of battery volleys of 155mm dual purpose ICM rounds (M483) against specific target arrays.

3. DISCUSSION AND RESULTS

a. General Game Rules.

(1) The overall assessment of the game rules is that they are quite sufficient for the implied purpose of providing a vehicle for leaders to learn to manage the highlighted variables of unit firepower, maneuver and survivability. The game provides an extremely flexible and workable means of setting up a CPX to exercise division G3 sections. It should serve as effectively to exercise corps level personnel if the player-controllers at division level are well trained in the game play. The supplemental rules for Logistics Administration, while not as complete as the tactical rules, seem to provide sufficient guidelines for the exercise of G1 and G4 sections, should the commander desire. In general, it was noted that the FIRST BATTLE rules are more formal than those included in commercial war games but that there are too few examples of their application given in the text. The caveat that the player will be required to use his judgment and military experience in applying the rules (Player's Guide, paragraph 6) can be used as a reason for not writing many specific rules, but a certain amount of concrete guidance is required to maintain an effective training exercise. Some specific areas involving difficulty in interpretation or application of the rules are given in the following sections.

(2) Many of the tables necessary for play or set up of the game are imbedded in the text of the rules. Examples are the Indirect Fire Strength Table (Player's Guide, page 19) and the Helicopter Assault Results Table (Player's Guide, page 17). While these tables are placed at the necessary and logical location for understanding the rules themselves, play of the game would be improved by providing either a supplement containing all the tables or a complete index to them.

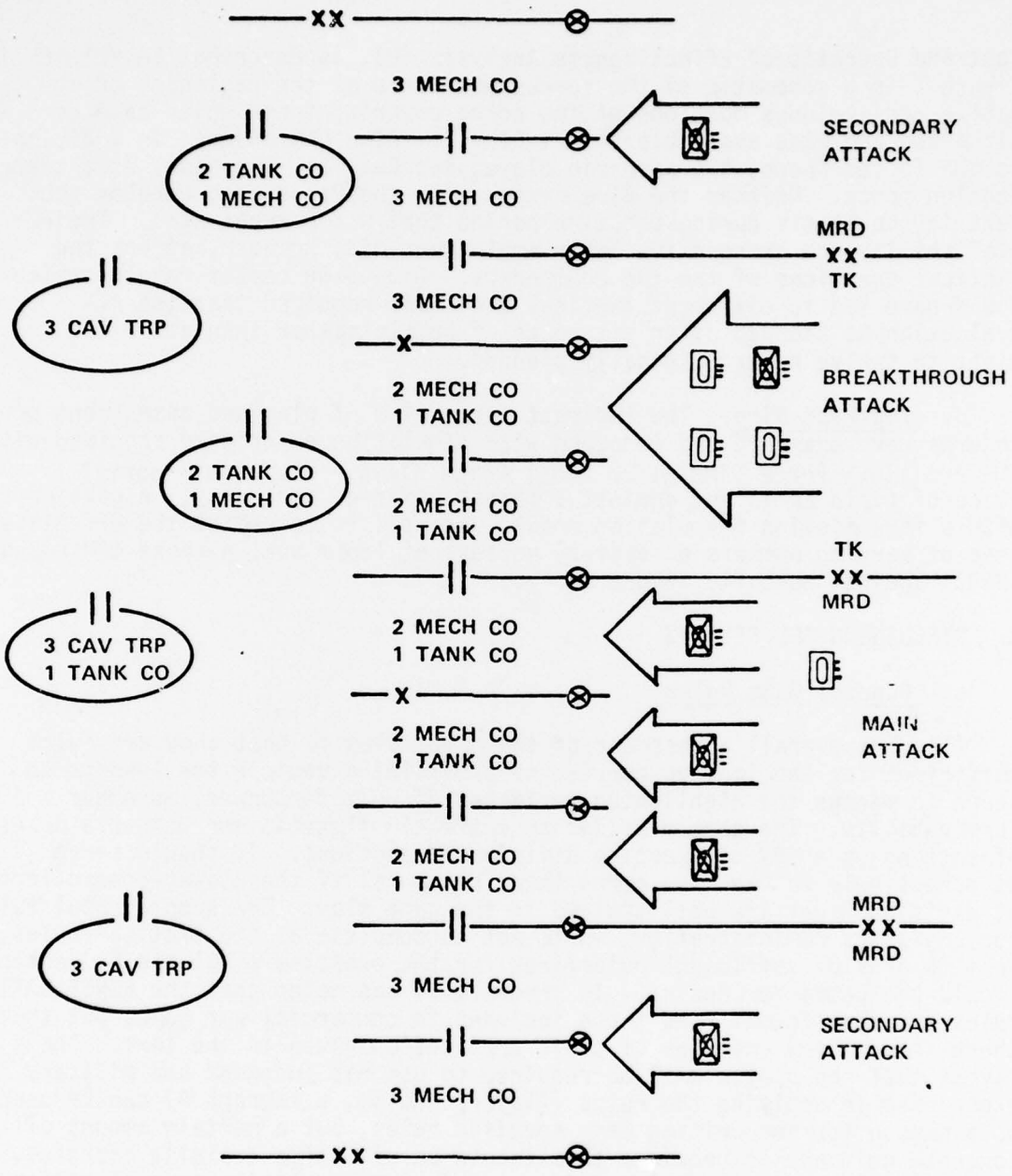


Figure 1 Original Force Structure

(3) The placing of optional rules, such as the optional artillery section and reconnaissance play, in the Player's Guide rather than the Supplemental Rules manual tends to blur the distinction between the basic and supplemental sets. This can serve as a source of confusion for beginning players/player-controllers as well as making the organization of the Player's Guide somewhat more complex than would otherwise be necessary.

(4) With the exception of the rule for employment of the Red second echelon, there is no stacking limitation given. A clear set of rules or a table should be provided, detailing permissible placement of similar or different units on the same or adjacent grid squares. While doctrine will provide the basis for such rules, recognition must also be given to potential situations where a player will feel it necessary to violate doctrine. The physical limitation of the terrain must then be considered, perhaps with penalties in the form of reduced combat effectiveness or increased losses.

(5) The rules concerning movement need some clarification, particularly concerning diagonal movement. The use of tactical maps as the playing board rather than using a stylized terrain overlaid with a hexagonal grid, which is normal for commercial war games, provides flexibility in the choice of which area will be played. It also permits gaming on a surface of familiar design to the players. The chief disadvantage is that movement along the diagonals is not easily treated. The rules as currently written are ambiguous, making diagonal movement rates at either 0.7 or 1.4 times the orthogonal rates depending on the interpretation of the players.

(6) The Nuclear Supplement (Supplemental Rules, page 32) by implication gives Red a chemical as well as a nuclear capability, but nowhere is this capability further discussed. The supplement also implies that Blue will never use chemical weapons (i.e., Blue must respond to a Red chemical or nuclear attack only with nuclear or conventional weapons) which is in contrast to current doctrine. The nominal yield of the weapons to be planned for use by Blue seems reasonable in a division context. Unclassified sources, however, indicate that a Red Combined Arms Army Commander could be expected to have high yield nuclear weapons available. Some consideration might be given to allowing Red to plan for and play yields in the 100 KT range. Other points in this supplement requiring clarification or reconsideration are the determination of ground zero (paragraph 12), the effects of radiation on movement (Table IV, line 1), and the effects on communications (Table V). Paragraph 12 states that "a one CEP error will be incorporated into the determination of each ground zero. A dice roll will determine the direction of displacement." No unclassified CEPs are provided and no information is given on how to translate the six or eleven possible results from throwing one or two dice into the eight primary directions of a square grid map. Table IV indicates that a unit will reduce its movement rate by 50 percent while moving through a contaminated area.

A wise and prudent commander, in contrast, might be expected to move his unit through such an area at the maximum speed his equipment and the terrain would permit. The communications losses and consequential movement losses (Table V) seem unrealistically severe for the weapon yields played (see also the comments on the E-War module).

(7) An Engineer Supplement is referenced in the Player's Guide (page 12) but is not a part of the game package.

b. Direct Fire and Close Assault CRTs. Using the method outlined in paragraph 2, six hours of ground combat previously played in DBM were re-evaluated by the FIRST BATTLE CRTs. Table 1 summarizes the attrition found in each case. In developing these results, 25 separate battles encompassing two to seven opposing units and spanning one to three hours were re-evaluated. Of these, eight battles were stopped from 1/2 to 1-1/2 hours earlier in the re-evaluation because of excessive Red losses. Keeping these facts in mind, there are several points to be noted from Table 1.

TABLE 1

COMPARATIVE GROUND COMBAT LOSSES

WEAPON SYSTEM		ENGAGING FORCES	TOTAL LOSSES	
			DBM	FIRST BATTLE
BLUE	TANK	85	55	64
	APC	182	20	61
	TOW	84	29	34
	TOTAL	351	104	159
RED	TANK	303	191	189
	BMP	357	124	145
	TOTAL	660	315	334

First, FIRST BATTLE is, in general, a "bloodier" simulation than DBM. Second, FIRST BATTLE kills more APCs in proportion to tanks than does DBM. Third, with the exception of Blue APCs and points one and two notwithstanding, the losses in the two cases may be said to be comparable. With regard to the first point, the higher overall kill rate of FIRST BATTLE may be attributed directly to the handling of time. As little as a ten percent change in the time used in developing the CARMONETTE-DBM base would bring the overall kill

rates into line. For the second point, DBM keeps track of and reports kills of individual weapon systems. By the tactics played, Blue APCs were essentially vehicles rather than close assault weapons and were not placed in vulnerable positions. Similarly, BMPs were not high priority targets for the Blue defenders since they serve as primarily an overwatch or defensive weapon. In contrast, FIRST BATTLE uses the APC symbol for the integrated value of the infantry squad with its weapons. Since there was no convenient way to do this with the DBM results, it would be expected that DBM would show lower APC losses than FIRST BATTLE. It should also be noted that the total Blue to Red kill ratio is 104/315 (0.33) for DBM and 159/334 (0.47) for FIRST BATTLE. There are two possible explanations for this difference. First, the APC kill rates greatly influence the ratio, and second, the DBM combat capabilities are built around the XM-1 tank while FIRST BATTLE used the M60A1 tank as a base. In general, it appears that the FIRST BATTLE Combat Results Tables are reasonable and internally consistent. The comparison with DBM results over an extended time period showed similar losses provided the comparison guidelines were followed.

c. E-War Supplement.

(1) Given today's combat environment, consideration of the EW impact on combat operations is essential in order to produce a realistic combat simulation. While the E-War Supplement is a comprehensive attempt to accomplish this, it has two major flaws which may prove counterproductive. First, its administration is unwieldy, requiring an inordinate number of players/player-controllers relative to the overall role of EW. A general simplification and reduction in scope of the supplement is indicated. Second, the doctrinal base of the ESM (targeting) rules, E-War, page 5, paragraph 6a(2), is questionable. Guidance received from HQ DA and HQ TRADOC during the conduct of the CEFLY LANCER COEA stated that not all EW systems were intended to be used for munitions targeting (comments by Mr. Hunter Woodall, CEFLY LANCER COEA Working Meeting, DA, Jun 77). This discrepancy must be resolved since it impacts upon the entire playing concept and strategy.

(2) The following specific comments apply. All references are to the E-War supplement.

(a) Reference page 6, paragraph 7. The Continuous Play Option must be explained more clearly in the context of how it differs from other game activities.

(b) Reference page 15, paragraph 3. It is unlikely that a jammer could be targeted against a specific unit net without affecting other units in the area. For example, an FM jammer using a 180°-omni antenna would typically affect an area 40 km wide to a depth of 21 km. This should be accounted for by including the collateral jamming effects.

(c) Confusion is caused by the fact that there is more than one set of tables labeled 1, 2, 3, and 4.

(d) Table 1 (page 21) does not depict probabilities as stated in the explanation but merely directs the reader to columns in the subsequent tables.

(e) Table 2 (page 22) provides unit location to six digit coordinates when only four digit coordinates are used in the play of the game. As well as giving unnecessary information, this inadvertantly makes die rolls of 3 and 6 equivalent, thus biasing the outcome. Unit locations should also be given with some confidence level attached to them to account for the possibility of receiving incorrect intelligence.

(f) Table 4 (page 23) is totally unintelligible.

d. Attack Helicopter. The attack helicopter rules of play and assessment procedures were examined and compared to a first look at the data from the Attack Helicopter Instrumented Test-Phase I (AHIT-I) conducted for OTEA by TCATA at Ft. Hood during May 1977. The AHIT-I scenario played three TOW-Cobra helicopters against a deployed Red force consisting of 12 BMPs, 6 T-62s, 2 ZSU 23-4s, 2-ZSU 57-2s, and 4 SA7s. The Blue helicopters used ambush tactics from selected defensive positions, and the Red force had successfully penetrated the Blue ground forces forward defensive positions. No artillery was employed by either side, and the Red force coordinated its movement and used wood lines to provide maximum protection from this air threat. In this setting the Blue helicopters were able to achieve a loss exchange ratio (LER) of about eight Red vehicles to each helicopter lost (8/1) when the terrain favored the helicopter. When the helicopter was forced to attack from unfavorable terrain, a loss exchange ratio of about 4/1 could be expected. These results are directly comparable to the expected ratios of the FIRST BATTLE Attack Helicopter Combat Results Table for the case where the target Close Assault Strength (CAS) is less than 15 and there are three Blue helicopters in the attack. The CAS of the AHIT-I force, however, was greater than 18 which would cause one to enter the second part of the Attack Helicopter CRT. This is used for targets with a CAS of 15 or more, and the AHIT-I results do not compare with the expected loss exchange ratios extracted from this table. This suggests that the rather arbitrary value of 15 CAS points which separate the two sections of the Attack Helicopter CRT should be increased to a value that will force entry into the first CRT for a threat force that is close in size to the AHIT-I force. For larger threat forces (approximately battalion size) the second CRT could be used. If such a change is made, the CRT for attack helicopter play seems to be a reasonable and logical extension of the AHIT-I experiences. The rules for entering and using the Attack Helicopter CRTs are, however, somewhat ambiguous and should be clarified along the following lines:

(1) The tabular loss ratios from the CRTs are in CAS points for the target and Direct Fire Strength (DFS) points for the helicopter. Each CAS point equates to a target vehicle and two DFS points equate to one helicopter. A ratio of 2/1 from the CRT then means that two target vehicles are lost for each half helicopter lost. Normalizing on the helicopter losses gives an overall expected LER of 4/1 (4 target vehicles lost for every helicopter lost).

(2) If helicopters fire during the turn they arrive on station, the table value from the CRT is used to assess the attrition. This assumes that the helicopter fires from unfavorable terrain. If the helicopter arrives on station but does not fire until the next turn, favorable terrain is located and the helicopter fires with double effectiveness. Double effectiveness should mean that only the target CAS points lost are doubled. For example, a table value of 2/1 becomes 4/1 when the double effectiveness rule is applied. Again, the 4/1 value means that four target CAS points are lost for each DFS point for the helicopter; so, the vehicle LER is 4/.5 or 8/1 for a helicopter attacking under favorable conditions.

e. Indirect Fire.

(1) The results of the comparison of AFSM with FIRST BATTLE are shown in the following tables. Table 2 shows the number of tanks or BMPs killed by artillery fire as a function of the number of battery volleys and the number of targets within a given radius. Table 3 shows the expected losses of "soft" targets (infantry squads including their APCs) as a function of the FIRST BATTLE indirect fire strength.

TABLE 2

TARGET LOSSES PREDICTED BY AFSM

NUMBER OF BATTERY VOLLEYS OF 155MM DPICM ROUNDS (M483)	NUMBER OF TANKS AND APCs IN A 110 METER RADIUS				
	50	40	30	20	10
1	.30	.24	.18	.12	.06
3	.85	.68	.51	.34	.17
6	1.75	1.40	1.05	.70	.35
9	2.55	2.04	1.53	1.02	.51

TABLE 3

INDIRECT FIRE CRT EXPECTED LOSSES FOR MANEUVER UNITS

STRENGTH OF FIRING UNIT (IDFS Points)	1-5	6-10	11-15	16-20	21+
EXPECTED SOFT TARGET LOSSES	.5	1.0	2.0	2.7	3.5

(2) A problem with trying to compare the two tables is that in FIRST BATTLE neither a typical mission (number of volleys) nor a typical target (number of target elements) is defined. If one assumes that the typical Red target is 50 tanks and BMPs and that Blue typically fires three volleys from a battery (6-10 IDFS points), the tables compare quite well for Blue firing 155mm ICM at Red. The FIRST BATTLE losses are, however, consistently higher, and the difference increases as the target size diminishes. Although no data were immediately available for Red artillery firing on Blue in defensive positions, the use of the FIRST BATTLE Indirect Fire CRT in conjunction with the rules for reducing the losses by 1/2 seems to be reasonable, particularly since a Red artillery battalion is given less indirect fire strength points and the Blue defending units will have fewer target elements.

(3) The Indirect Fire/Counter Battery CRT seems to be well in line with AFSM experience. Given the three volley battery missions assumption, the expected losses from the Indirect Fire CRT for counterbattery fire is low by a factor of 2, but the AFSM routine used to assess the counterbattery results assumed a zero target location error. Had expected target location errors been input into the AFSM routine, the results would have been in close agreement with the counterbattery CRT.

(4) In general, the Indirect Fire CRT and the rules for the indirect fire play provide reasonable approximations for the play of field artillery.

4. CONCLUSIONS

a. FIRST BATTLE provides a sound and credible means using the Basic and Supplemental Rule sets to establish and run a division level simulation either as a game or as a CPX.

b. Use of the Combat Results Tables provides somewhat higher attrition rates than are found in other models examined. The difference in rates is not enough to warrant redesign of the CRTs.

c. The Nuclear and E-War Supplements require modification and clarification to be fully functional.

5. RECOMMENDATIONS

a. Use FIRST BATTLE in its present configuration for the REFORGER exercise.

b. Review and modify those portions of the rules noted as problem areas.

APPENDIX A

PROJECT COORDINATION SHEET

I. PROJECT TITLE: Battle Simulation Systems: Weapons Effects Data and Game Rules

II. PROPONENT ELEMENT OF CONTACT:

US Army Command and General Staff College
ATTN: Colonel William A. Malouche, AUTOVON 552-3694
Fort Leavenworth, Kansas 66027

III. USA TRASANA ELEMENT POINT OF CONTACT:

USA TRASANA
Systems Engineering Division
System Studies Branch, ATAA-TDX
White Sands Missile Range, NM 88002
ATTN: R. Wood, AUTOVON 258-4541

IV. TASK TITLE:

Battle Simulation Systems: Weapons Effects Data and Game Rules

V. SUMMARY:

A. This project will develop a plan for standardizing a weapons effects data base which can be applied to currently existing and proposed battlefield simulation systems (BSS) being developed at the Command and General Staff College (CGSC). The project will also examine the battlefield simulation systems' application of "rules of play" for consistency. Finally, USA TRASANA will critique the battlefield simulations with regard to the positive or negative incremental effect that each of the above applications has on the battlefield simulations. Operating instructions will also be reviewed for appropriateness.

B. This project will initially concern itself with four battlefield simulations:

1. DUNN-KEMPF

2. LONGTHRUST

3. Computer Assisted Map Maneuver System (CAMMS)

4. FIRST BATTLE

VI. GENERAL SCOPE OF WORK:

USA TRASANA will provide CGSC with a plan for the development of a common weapons effects data base, consistent use of rules of play, and appropriate operating instructions for BSS. A long range objective is to have the plan apply to currently existing BSS and those being developed at CGSC.

VII. SPECIFIC SCOPE OF WORK:

USA TRASANA will:

A. Prepare and submit a plan for determining if standard weapons effects data are compatible among DUNN-KEMPF, LONGTHRUST, CAMMS and FIRST BATTLE BSS. An objective of this effort will be to have the plan adaptable to other BSS's.

B. Prepare and submit a plan for analyzing the consistency of "rules of play".

C. Examine BSS for disparities caused by the lack of applied accurate and standard weapons effect data base, consistent rules of play, and appropriate game operating instructions.

D. Make recommendations to CGSC on the means to improve the BSS through the use of standard and accurate weapons effects data, consistent rules of play, and operating instructions.

VIII. DEPENDENCE ON EXTERNAL EVENTS:

CGSC will provide USA TRASANA:

A. A complete set of materials and all the supporting documentation for DUNN-KEMPF, LONGTHRUST, CAMMS and FIRST BATTLE.

B. Access to the CAMMS system and qualified developer/instructor personnel and system documentation.

IX. ESTIMATE OF USA TRASANA

It is estimated that eighteen man-months will be required to support this effort.

X. SCHEDULE: See Annex A attached.

XI. TRAVEL ESTIMATION:

It is estimated that the following travel will be required:

A. Five man-trips to the Training and Doctrine Command Combined Arms Test Activity (TCATA) for observation, consultation, and data collection.

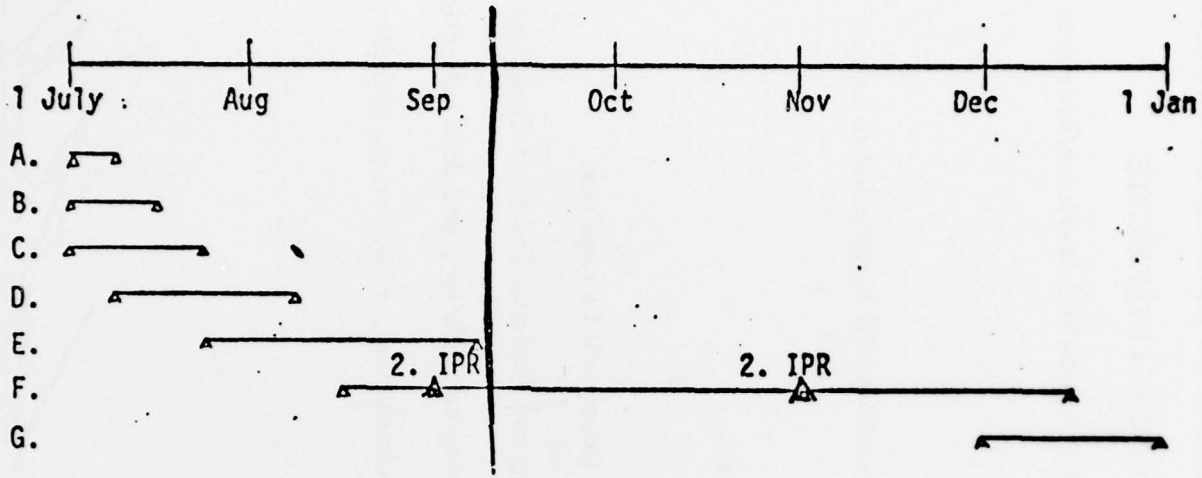
B. Nine man-trips to CGSC for observation, consultation, and data collection.

B. L. HARRISON
Brigadier General, USA
Deputy Commandant

LEON F. GOODE, JR.
Dep Dir for Technical Operations
USA TRASANA
WSMR, NM 88002

ANNEX A (SCHEDULE) 1.

BATTLE SIMULATION SYSTEMS: WEAPONS EFFECTS DATA AND GAME RULES



A. Expected delivery of DUNN-KEMPF (6 Jul 76)

B. Expected delivery of LONGTHRUST (13 Jul 76)

C. Expected delivery of CAMMS (22 Jul 76)

D. Initial review of BSS

E. Prepare and coordinate USA TRASANA analysis plan with CGSC

F. Implement study plan

G. Prepare and submit final report

1. This schedule contingent upon rece of BSS on scheduled dates. Delive delays will necessitate schedule adjustment.

2. IPR--In Process Review

APPENDIX B

ATAA-TEM 1 Aug 77

MEMORANDUM FOR RECORD

SUBJECT: FIRST BATTLE Evaluation Requirements

1. References:

a. Project Coordination Sheet, subject: Battle Simulation Systems: Weapons Effects Data and Game Rules.

b. Meeting at Ft Leavenworth on 27 Jul 77 with LTC Alexander, Mr. Ray Heath, MAJ John Shuford and CPT Fredrick Knack.

c. Mr. Goode's Memo of 27 Jun 77, subject: Evaluation of FIRST BATTLE.

2. During the meeting with LTC Alexander (ref 1b) if was decided that due to the short time available for the FIRST BATTLE evaluation (ref 1c) no effort should be made to compare FIRST BATTLE rules and weapons effects data to other battle simulation systems as called for in the BSS PCS (ref 1a). The current effort would focus only the reasonability of FIRST BATTLE over an extended period of time at the division level, since it will be used as a CPX tool for REFORGER. This effort would not necessarily fulfill the commitments made under the BSS PCS.

3. It was further agreed that TRASANA's current effort would include, as a minimum, the following:

a. A general review of the game rules.

b. A general review of the electronic warfare adaptations.

c. A determination of the reasonableness of the combat results over an 8 to 12 hour period of division level combat. If combat results for the extended period are determined not to be reasonable, recommendations for appropriate changes to the combat results tables and/or rules will be made.

4. It was further agreed that the TAC AIR rules and results tables would not be examined or commented on, but that armed helicopter play would be examined to the extent that time permitted.

5. It was also agreed that the evaluation should be completed on or about 15 August with results delivered to LTC Alexander no later than 1 Sep 77.

John H. Shuford

JOHN H. SHUFORD
MAJ, FA
Simulation Support Branch II

APPENDIX C

RULES FOR TESTING FIRST BATTLE VS DBM

1. Only the breakthrough and main attack zones of the DBM scenario will be considered. The secondary attack zones will be omitted.

2. For purposes of time determination, DBM battle group results will be rounded to the nearest 1/2 hour with one FIRST BATTLE turn assessment calculated per half hour of DBM time.

3. Units will not be permitted to fight to zero strength. Assessment will be stopped and the time noted if losses reach 80 percent of the original tank strength.

4. To be consistent with the priority of fires from the DBM-CARMONETTE history, CAS losses will be assessed in the ratio of two tanks/TOWS per APC/BMP.

5. DBM battle groups will be broken up as necessary so that approximately one Blue company is involved in each FIRST BATTLE assessment.

6. For long range battle groups (initial separation 3000m)

a. Artillery will be assessed from the Indirect Fire CRT. Points will be counted as follows:

WEAPON	POINTS PER TUBE
4.2	1
155	1
8"	2
122 H	1.5
152 H	2
122 MRL	10

Artillery will be fired once per FIRST BATTLE turn.

b. Direct fire losses will be calculated assuming the attacker alternately moves and then stops and returns fire during a turn. Losses are then assessed twice, once from each side of the CRT.

c. If the battle group time was more than one hour, the third and subsequent FIRST BATTLE turns will be fought as short range battle groups.

7. For Short Range Battle Groups (initial separation 1000m)

a. Results are assessed alternately off the Close Assault CRT and the Direct Fire CRT. The Direct Fire CRT is used twice, as in rule 6b, and counts as 1/2 hour of FIRST BATTLE play.

b. Artillery is used only in computing close assault strength - Blue values are doubled and Red values remain the same as in rule 6.

8. Expected Value CRT.

a. Close Assault CRT

ATKR TO DFNDR RATIO	1-4 to 1-3.01	1-3 to 1-2.01	1-2 to 1-1.01	1-1 to 1.99-1	2-1 to 2.99-1	3-1 to 3.99-1	4-1 to 4.99-1	5-1 to 5.99-1	6-1 to 6.99-1	7-1 to Better
ASSESSED LOSSES	4/1	3/1	4/2	4/2	4/3	3/4	2/4	2/5	2/5	1/6

b. Direct Fire CRT

DIRECT FIRE STRENGTH FIRING UNIT	Unit Continues to Move					Unit Returns Fire				
	1-5	6-10	11-15	16-20	21 +	1-5	6-10	11-5	16-20	2[illegible] +
ASSESSED LOSSES	0	1	2	3	4	1/0	2/1	3/1	4/2	5/2

c. Indirect Fire or Maneuver Units CRT

STRENGTH OF FIRING UNIT	1-5	6-10	11-15	16-20	21 +
ASSESSED LOSSES	0	1	2	3	4

APPENDIX D

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FIRST BATTLE is a low resolution battlefield simulation system designed to exercise division and corps staffs. The system was reviewed to provide an estimate of its credibility as a division level simulation and to provide specific comments on the Combat Results Tables. The results indicated that the simulation does provide a sound and credible means of running a division level Command Post Exercise with no modification of the basic rules or Combat Results Tables. Certain of the supplemental rules do require modification.

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