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Research Product 89-14

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# Battle Scenarios to Exercise Division Staffs

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May 1989

Fort Leavenworth Field Unit  
Systems Research Laboratory

U.S. Army Research Institute for the Behavioral and Social Sciences

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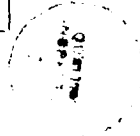
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19. ABSTRACT (Continue on reverse if necessary and identify by block number) For this research, two battle scenarios for exercising division staffs were developed. The scenarios are set in Western Europe, employ Army units under current J-series (i.e., October 1986) tactical organization, reflect Air-Land Battle doctrine, and incorporate current Soviet doctrine and organization. The scenarios support division-level tactical planning in the operations (G3) and intelligence (G2) staff areas. Information is provided to describe the intent, organization, and content of the scenarios. Typical staff products developed under the effort (intelligence estimate, operations estimate, and operations order) are described and suggested as comparisons for evaluation when the scenarios are used. With the information available in this report, the value of these scenarios can be determined for various, potential applications. The scenario materials can be obtained by contacting the individual identified in Block 22a of this DD Form 1473.			
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**Research Product 89-14**

## **Battle Scenarios to Exercise Division Staffs**

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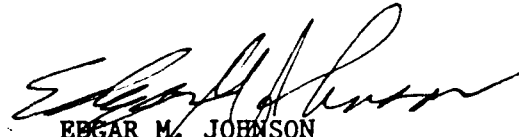
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FOREWORD

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A major research concern for the Army Research Institute for the Behavioral and Social Sciences (ARI) is improvement of the efficiency, accuracy, and timeliness of command and control (C<sup>2</sup>). The ARI Fort Leavenworth Field Unit has developed a laboratory facility dedicated to C<sup>2</sup> research and product evaluation. The facility is referred to as the Experimental Development, Demonstration, and Integration Center or EDDIC.

To conduct unclassified research in the facility, unclassified, current and representative battlefield scenarios are needed. The scenarios must be sufficiently realistic and comprehensive to maintain the interest of experienced military subjects and allow the generalization of laboratory findings to actual field command posts. The scenarios described in this research product were developed to fulfill the C<sup>2</sup> research laboratory requirements and can serve training and evaluation purposes as well.

  
EDGAR M. JOHNSON  
Technical Director

# BATTLE SCENARIOS TO EXERCISE DIVISION STAFFS

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# BATTLE SCENARIOS TO EXERCISE DIVISION STAFFS

## INTRODUCTION

This report describes two battle scenarios that were developed to exercise division level staffs for laboratory research. The scenario materials are described so that readers can determine whether these materials would be useful in their potential applications. Although the scenarios were developed with investigations of staff performance in mind, they also would be useful for exercising staffs in various training applications (such as command post exercises, classroom exercises, and seminars), in command and control (C<sup>2</sup>) model simulations, and in assessments of new materiel, doctrine, or organizations.

The scenario materials include offensive and defensive scenario data packages and associated overlay transparencies. Because of the bulk and the non-standard format of the media on which the scenarios are contained, the scenario data packages are not reproduced in this report.<sup>1</sup>

### Scope

The emphasis in the development of the scenario materials was to provide an information environment with stimuli and task constraints in which to investigate issues of C<sup>2</sup> staff performance. The resulting scenarios are characterized by this emphasis, but potential applications are not severely limited because of it. In the current form, the materials are suitable for stimulating intelligence (G2) and operations (G3) staff coordinating functions of a mechanized heavy division. The materials can be extended to suit other applications.

### Overview

Two scenario data packages were developed. One scenario involves Division level defensive operations in Western Europe. The second scenario involves offensive operations in the same location. Both scenarios reflect current Air-Land Battle doctrine, and employ Army units organized under J-series tables of organization and equipment (TOE), October 1986. The scenarios were developed by analysts experienced in staff operations (Carter & Ross, 1987) with consultation, provided by members of the Center for Army Tactics, U.S. Army Command and General Staff College. The scenarios are somewhat similar in format to the TRADOC Common Teaching Scenarios (TRADOC, 1985) but include more status information on personnel and equipment.

To clarify the nature of the scenario data packages, we shall assign one description from three general data base types. Crumley (1985) defines a "static" data base as a description of a tactical situation at a specified instance in time. A "moving" data base is a continuing description of an emerging tactical situation but with which the players only receive information;

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<sup>1</sup>To obtain these materials contact the individual indicated on Block 22 of DD Form 1473 on the cover of this report.



their actions do not affect the data. An "interactive" scenario is a continuing description of a tactical situation which does reflect actions taken by the player. The scenarios described in this report are predominantly "static". Data are given for several instances in time as history data. These history data provide the context and background knowledge which players would need to perform as actual staff officers. The offensive scenario provides some "moving" data which is referred to as a probe event and is described below.

Each scenario provides history data for four time slices: a current situation and one for each of three preceding days. These history data provide the context and background needed to start the interactive portion of an exercise. In each scenario the exercise period begins with the Division Commander's Guidance being provided to the staff. The step which the staff must perform in the exercise is to develop an estimate of the situation, involving detailed intelligence and operations estimates, and a recommended course of action.<sup>2</sup>

In the offensive scenario, a probe requiring G2 and G3 interaction is included. The probe involves updated information on the movement of the opposing force's second echelon which should prompt threat reevaluation and revision of the estimate of the situation. Baseline solutions are provided for the offensive scenario, including detailed descriptions of the staff process, an intelligence estimate, an operations estimate and an operations order.

The offensive scenario was designed to stimulate decision making between two participants, one acting as an intelligence officer and the other as an operations officer. The probe information is given to the intelligence officer early in an exercise. This information, presented as spot reports from various sources, indicates that the enemy's second echelon army is moving into the friendly territory more rapidly than originally thought. The intent of the probe is to cause an increase in the exchange of detailed information between the two participants and cause replanning of the operation. This probe permits the experimenter or trainer to look at interactive decision making issues.

Further detailing of the defensive scenario would permit its use in a multiple participant mode as well. Historical and current detail can be added to either scenario to permit interplay among three or more participants, e.g. adding the fire support element or logistics representatives.

The scenario data are organized into history files and reference files. These files are described in the remainder of the report. Also discussion of the baseline solutions is provided. First excerpts are given from the defensive (Table 1) and offensive scenarios (Table 2). The transcripts indicate Corps disposition, mission, current situation and the assignment to the plans officers. Figure 1 represents the defensive current situation graphically. Figure 2 depicts the current situation for the offensive scenario.

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<sup>2</sup>Michel and Riedel (in preparation) report an investigation of operations (G3) decision making in which scenarios of this type were used. Also, Tolcott, Marvin and Lehner (in preparation) report use of similar scenarios for intelligence (G2) decision making research.

Table 1.

Defensive Scenario Excerpt\*

---

ORIGINAL CORPS DISPOSITION

1. 10 (US) Corps with two divisions (52d Mechanized Infantry Division [MID] and 23d Armored Division [AD]), the 313th Separate Brigade (Mechanized) (Sep Bde [Mech]), and the 201st ACR deployed to defend the Inner German Border (IGB) from approximately 7 km north of BEBRA to approximately 9 km south of FULDA. This resulted in a corps frontage of approximately 65 km.
2. 52d MID defends the north portion of the corps sector on a front of 35 km. The 23d AD defends the southern portion of the corps on a front of approximately 30 km.
3. The corps covering force consisted of the 201st Armored Cavalry Regiment (ACR) and two battalion task forces from 52d MID. The covering force operated between the IGB and the initial defensive positions of the main battle area (MBA) along the FULDA and HAUNE Rivers.
4. The 313th Sep Bde (Mech) was held in corps reserve.
5. The 28th Panzer Division, 3d German (GE) Corps is defending on the corps north flank while the 12th (NATO) [North Atlantic Treaty Organization] Corps is defending south of 10th (US) Corps.

ORIGINAL CORPS MISSION

1. The 10th (US) Corps mission is to defend its assigned sector, preventing any significant enemy penetration into West Germany, to defeat the 4th Combined Arms Army (CAA) and 10th CAA, and to provide a base for the Central Army Group (CENTAG) counterattack.
2. As a part of 10th (US) Corps, 52d MID is to defend in sector and defeat the first echelon divisions of the 4th and 10th CAA's.
3. The major enemy thrust into the 10th (US) Corps sector was expected to take place in the HUNFELD area. The attack was anticipated to consist of as many as 4 divisions of the 4th CAA and 3 divisions of the 10th CAA operating on a 40 km front. The priority for Corps assets has been, therefore, to the 23d AD.

Table 1 (continued)

Defensive Scenario Excerpt

---

HISTORY TO CURRENT TIME

1. 10th CAA attacked very early on 17 August with two motorized rifle divisions (MRD) in the first echelon across a front of approximately 26 km, basically the area defended by 1st and 2d Brigades, 52d MID. The covering force was quickly forced back into the main battle area (MBA) and penetrations of the main defensive line began to develop with the potential result of a double envelopment of the 1st Bde and parts of 2d Bde.

2. The penetrations were eventually halted but similar problems in the 23d AD sector put units remaining on the original forward edge of the battle area (FEBA) in extremely vulnerable positions. To alleviate these problems the Corps Commander ordered a pull back to phase line Bravo around 180600 August, some 30 hours after the initial attack.

3. For the past 24 hours, 1st and 2d Bde have been steadily delaying back to phase line Charlie under heavy pressure by the 71st MRD in the north and the 128th MRD in the south.

4. Meanwhile, the fighting in the 3d Bde sector had been relatively light. They have been facing elements of the 48th MRD, 4th CAA since the onset. It is apparent now that the 48th MRD has been screening between the two main thrusts of the 10th CAA in the north and the other divisions of the 4th CAA in the south. Due to the critical situation on both flanks, the Corps Commander decided yesterday afternoon to commit the 201st ACR between the 52d MID and the 23d AD, thus relieving the 3d Bde, 52d MID, and the 1st Bde, 23d AD. Relief of these two brigades was intended to strengthen the defensive capabilities of the respective divisions. The relief occurred during the hours of darkness last night.

THE CURRENT SITUATION

1. Last night (18-19 August) elements of the 71st MRD and the 128th MRD launched 3 separate attacks against 1st and 2d Bde positions, nearly penetrating our defense in all three instances. They attacked toward HOMBERG in the north forcing our defenders back to that city; the situation has settled down in that area. They also attacked toward SCHWARZENBORN, actually penetrating our lines at one time, but have now withdrawn east of the EFZE River in that sector. Finally, around 0200 this morning (19 August) they launched an all-out attack up the AULA River Valley, nearly resulting in a rout of the troops in that sector; however, a new defensive line has been established west of OBERAULA, and the situation has also stabilized in that sector. In fact, except for close range fighting south of the SCHWARZENBORN Gap, things have settled down all along the 52d MID front, with 71st and 128th MRD apparently fairly well spent.

Table 1 (continued)

Defensive Scenario Excerpt

---

2. The 201st ACR has relieved the 3d Bde, 52d MID, which, with its three battalions, has withdrawn into the SCHONBERG area awaiting further orders.

3. During the intense fighting last night, the 9th Guards Tank Division (GTD) of the 10th CAA crossed the FULDA with no opposition and is now in assembly areas only 10-15 kms from our front lines.

4. Also, the 7th Tank Army (TA) has been moving up the autobahn by night marches and has apparently settled in for the day with its lead elements around EISENACH, only about 60 km from 52d MID frontlines.

5. 28th Panzer Division (GE) is holding well against moderate to heavy pressure in the north by elements of the 8th CAA. On our southern flank, 48th MRD of the 4th CAA shows no signs of pressing the attack against the 201st ACR. Further south, the 23d AD is on good defensive terrain east of LAUTERBACH and now appears to be in no immediate danger. Thus, the Corps Commander has no immediate plans for a general withdrawal to phase line Charlie.

YOUR ASSIGNMENT

1. It is now 190700 August. Corps has issued a fragmentary order for the continuation of the defense, mission analyses have been completed, and the Division Commander has issued his planning guidance to include three possible courses of action.

2. You are the G3 Plans Officer. The G3 has just departed the command post (CP) with the Division Commander and has directed you to prepare the operation estimate and concept of operation for continuing the defense over the next 36 hours in accordance with the corps order and the Division Commander's guidance.

3. Information necessary to your planning, including the commander's guidance and the estimates prepared by other staff members, is included in the data base provided. Data are provided in both graphic and narrative forms. Reference data which you may find useful are also included in the data base.

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\*Taken from Carter and Ross (1987), Appendix B.

Table 2.

Offensive Scenario Excerpt\*

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ORIGINAL CORPS DISPOSITION

1. 10th (US) Corps, with three divisions (12th MID, 16th MID, and 32d AD), 313d Sep Mech Bde, and the 203d ACR, is a major element of NATO Central Army Group (CENTAG), which is counterattacking an enemy penetration into the KASSEL-FRANKFURT corridor of West Germany. 6th (US) Corps is attacking on the north flank, and 12th (NATO) Corps is attacking on the south flank.

2. The 16th Mechanized Infantry Division (16th MID) has been attacking in the north zone of the corps sector, while the 12th MID has been attacking in the south. The 32d Armored Division (32d AD) has been previously committed, but is now in corps reserve. The 203d ACR is in reserve and has been performing rear area security missions. The 26th MID of the 6th (US) Corps is attacking on the north flank of the 16th MID, and the 23d Panzer Division of the 12th (NATO) Corps is attacking on the south flank of the 12th MID.

3. 10th (US) Air Force supports 10th (US) Corps.

ORIGINAL CORPS MISSION

1. 10th (US) Corps mission was to counterattack in assigned zone, destroy Warsaw Pact forces in zone, restore the Inner German Border (IGB), and, on order, be prepared to continue the attack to the east.

2. As part of the 10th (US) Corps, 16th MID was to attack, seize crossings over the FULDA and HAUNE Rivers, destroy enemy forces in zone, and, on order, be prepared to continue the attack to the east.

3. It is anticipated that the enemy will continue to employ economy of force in the CENTAG zone of operations while exploiting successes in the North German Plain. Enemy forces opposing CENTAG have been punished significantly over the recent past; first, during their initial attack into West Germany and, second, as a result of CENTAG's well-supported counterattack. Warsaw Pact forces are now faced with the prospect of NATO forces entering the German Democratic Republic (GDR), and their will to fight to prevent this will be intensified despite a battle-induced combat power deficiency.

Table 2 (continued)

Offensive Scenario Excerpt

---

HISTORY TO CURRENT TIME

1. On 19 August, Warsaw Pact forces attacked NATO dispositions along the entire front of the opposing forces, with the main effort in the North German Plain. A major secondary attack was directed at CENTAG positions along the IGB boundary. With the initiative and an initial combat power ratio in their favor, Warsaw Pact forces penetrated into the KASSEL-FRANKFURT corridor before NATO forces were able to stop the attack and to mount a counterattack. In the first week of the war, CENTAG ground forces traded space for time in a delaying action, but punished the Pact forces in the process.

2. On 27 August, CENTAG, with newly assigned divisions and other reinforcements, counterattacked Warsaw Pact forces in zone and made slow but steady advances against a weakening enemy. The enemy 10th CAA and elements of the 6th CAA gave ground reluctantly against the 10th (US) Corps attack, and friendly forces were advancing at a rate of about 8-10 kilometers per day. NATO air forces continued to pound the enemy in the CENTAG zone as ground forces pressed their attack.

3. The CENTAG Commander, sensing the need to take advantage of the tactical situation before reinforcement of Warsaw Pact forces in zone, released the 313th Sep Mech Bde to 10th (US) Corps and began moving the 11th AD up to be assigned to the Corps. CENTAG Commander ordered 10th (US) Corps to attack as early as practicable on 5 September, to destroy enemy forces in zone, to restore the IGB, and, on order, to be prepared to continue the attack to the east.

4. By 041800 Sep, 10th (US) Corps has advanced to a line approximately 15 kilometers west of the FULDA River and is continuing the attack to seize bridgeheads and crossing sites of the FULDA River. The Corps Commander recognizes that he has a window of opportunity which he must take advantage of before the enemy can effectively reinforce or replace the 10th CAA by elements of the 14th TA. To facilitate successful continuation of the attack, 10th (US) Corps Commander is committing the 32d AD, with 203d ACR attached, in a main attack to penetrate enemy positions and to restore the IGB. Concomitantly, the Corps Commander has narrowed the zone of the 16th MID and ordered the division to attack to seize and restore the IGB in zone. The Corps Commander has ordered the coordinated attack to begin at 051200 September and has designated objectives, zones, and phase lines for the attack.

5. The 16th MID has been attacking with two balanced tank and mechanized infantry brigades on line while maintaining one brigade (two battalion task forces) in reserve. With the commitment of the 32d AD (reinforced) as the Corps main attack in the south and with the narrowing of the 16th MID zone of operations, the 16th MID has a much better combat power ratio over the enemy in his zone and, consequently, a much better opportunity to prosecute the AirLand Battle and to accomplish his assigned mission.

Table 2 (continued)

Offensive Scenario Excerpt

---

CURRENT SITUATION

1. The 1st and 3d Bde of the 16th MID are continuing to attack eastward to seize crossings of the FULDA River. The 2d Bde is in Division reserve.
2. Upon receipt in mid-afternoon of 4 September of the warning order from the Corps Commander, the 32d AD initiated preparations to move to assembly areas immediately in rear of the 12th MID, planning to make much of the move under cover of darkness during the night of 4-5 September.
3. Movement of elements of the Warsaw Pact's 14th TA in the direction of the current 10th CAA positions has been detected, and those elements have been engaged by friendly air strikes since shortly after movement was detected.
4. A critical situation is developing such that NATO forces must act quickly and decisively to restore the IGB before the enemy can effectively reinforce the weakened 10th CAA.

YOUR ASSIGNMENT

1. It is now 042000 September. The Corps fragmentary order has been received, mission analyses have been prepared, and the division commander has issued his planning guidance, in which he has identified two tentative courses of action for mission performance. The Division Commander and the G3 have just departed the Main CP to go forward to assess the situation and to discuss the operation with key subordinate commanders at the division tactical CP.
  2. You are the G2, and the division commander has directed you to update your intelligence estimate of 03 September in light of the mission and recent events. You are directed to place special attention to the area of operations (AO) in the division zone, to the probable enemy courses of action, and to the influence of both the AO and the enemy courses of action on the division commander's decision for the upcoming operation. You are directed to coordinate closely with the G3 Section in the operational planning.
  3. You are the G3 Plans Officer, and the G3 has directed you to prepare for his review and approval the operation estimate and the concept of the operation for the continuation of the attack in accordance with the corps order.
  4. Available situational information, both graphic and narrative, for your planning is contained in the data base provided for your use. Reference material which you may find useful is also contained in the data base.
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\*Taken from Carter and Ross, Appendix C.

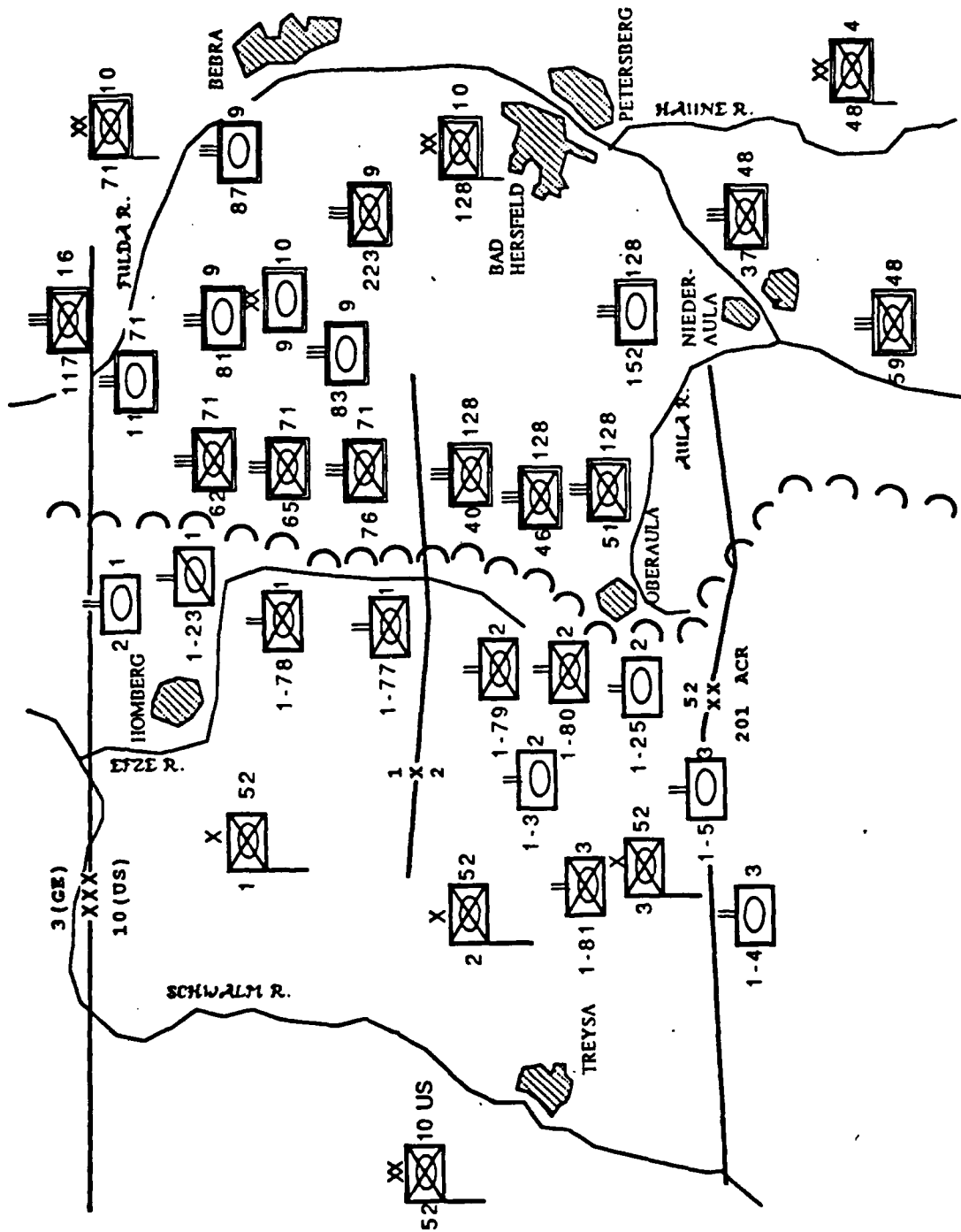


Figure 1. Defensive scenario: current situation.





## ORGANIZATION OF THE SCENARIO DATA PACKAGES

Where practical, data have been organized by the four principal coordinating staff functions, personnel (G1), intelligence (G2), operations (G3), and logistics (G4). Standard Army terminology was used for data categories and elements and products.

### Task Organization

The own force (or BLUEFOR) task organization follows the Army Command and General Staff College model for the hypothetical 52d (defensive scenario) and the 16th (offensive scenario) Mechanized Infantry Divisions (MID) of the 10th (US) Corps. Task organization information is provided for the division down through company level. Additional elements of the 10th Corps are identified along with adjacent units. The threat is portrayed as a typical opposing force (OPFOR) task organization of the 10th Combined Arms Army of the Soviet Central Front. OPFOR elements are identified from army down through battalion level. Task organizations change over the history of the battle.

### History Files

History files contain the bulk of the scenario information. The history time periods include current, current day minus one, current day minus two, and current day minus three information. Each file is organized in report formats typical of those used in division C<sup>2</sup> operations. The files contain various information including task organizations, enemy order of battle, status reports and tables, Corps intelligence summaries, Corps orders to Division, and estimates prepared for the Commander briefings. The types of information in the history files vary somewhat from period to period as indicated in Tables 3 and 4.

Staff estimates contain the narrative paragraph formats recommended in FM 101-5, Staff Organization and Operations. Information is provided in both summary and detailed formats. The current situation information in the defensive scenario contains 133 paragraphs and items in nineteen separate files. The files are organized by the four coordinating staff functions.

### Personnel

Personnel files give the personnel estimate, strengths, losses and gains and other personnel information.

### Intelligence

Intelligence files provide OPFOR compositions, committed forces, reinforcements, artillery, weather history, weather forecast and intelligence reports.

Table 3

Defensive Scenario: Contents of History Files

DTG: 161800 AUG      171800 AUG      181800 AUG      190600 AUG

<u>Personnel</u>	<u>Personnel</u>	<u>Personnel</u>	<u>Personnel</u>
Strengths Losses and Gains Other Personnel	Strengths Losses and Gains Other Personnel	Strengths Losses and Gains Other Personnel	Personnel Estimate Strengths Losses and Gains Other Personnel
<u>Intelligence</u>	<u>Intelligence</u>	<u>Intelligence</u>	<u>Intelligence</u>
OPFOR Composition	OPFOR Composition OPFOR Committed OPFOR Reinforcements OPFOR Artillery	OPFOR Composition OPFOR Committed OPFOR Reinforcements OPFOR Artillery	Intelligence Estimate Weather History Weather Forecast OPFOR Composition OPFOR Committed OPFOR Reinforcements OPFOR Artillery
<u>Operations</u>	<u>Operations</u>	<u>Operations</u>	<u>Operations</u>
Corps OPLAN		Corps Fragmentary Order	Corps Fragmentary Order Div Cmdrs Guidance Current Operations Task Organization
Current Operations Task Organization	Current Operations Task Organization	Current Operations Task Organization	Logistics
<u>Logistics</u>	<u>Logistics</u>	<u>Logistics</u>	<u>Logistics</u>
Class III Supply Class V Supply Equipment Status	Class III Supply Class V Supply Equipment Status	Class III Supply Class V Supply Equipment Status	Logistics Estimate Class III Supply Class V Supply Equipment Status

Table 4

Offensive Scenario: Contents of History Files

<u>DTC:</u> 021800 Sep	031800 Sep	041800 Sep	<u>Current</u>
<u>Personnel</u>	<u>Personnel</u>	<u>Personnel</u>	<u>Personnel</u>
Strengths Losses and Gains Other Personnel	Strengths Losses and Gains Other Personnel	Strengths Losses and Gains Other Personnel	Personnel Estimate
<u>Intelligence</u>	<u>Intelligence</u>	<u>Intelligence</u>	<u>Intelligence</u>
OPFOR Composition OPFOR Committed OPFOR Reinforcements OPFOR Artillery	Intel Estimate  OPFOR Composition OPFOR Committed OPFOR Reinforcements OPFOR Artillery	Weather History Weather Forecast OPFOR Composition OPFOR Committed OPFOR Reinforcements OPFOR Artillery Intel Reports	Intel Reports
<u>Operations</u>	<u>Operations</u>	<u>Operations</u>	<u>Operations</u>
Current Operations Task Organization	Current Operations Task Organization	Current Operations Task Organization	Corps Fragmentary Order Div Cmdrs Guidance
<u>Logistics</u>	<u>Logistics</u>	<u>Logistics</u>	<u>Logistics</u>
Class III Supply Class V Supply Equipment Status	Class III Supply Class V Supply Equipment Status	Class III Supply Class V Supply Equipment Status	Logistics Estimate

## Operations

Operations files contain the initial Corps operations plan, Corps fragmentary orders (FRAGOs), Division Commander's guidance, current operations status, and task organization.

The status of current operations is presented in terms of each Brigade's situation report, and each Battalion Task Force's situation report (see examples in Table 5 and 6).

Table 5

### Sample Brigade Situation Report

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ORGANI- ZATION	LOCA- TION	OPERATIONAL STATE	RESULTS
1 BDE	NB4551	DEFEND	Enemy initiated hostilities shortly after midnight with heavy artillery and multiple rocket launcher fires along entire brigade front. About 0105 hours the brigade CP was hit resulting in moderate casualties. Division covering force (TF 1-23) withdrew through the FEBA approximately 0900 hours becoming part of the division reserve. Shortly after 0900 enemy units were engaged with long range direct and indirect fires all across the brigade front from RAUTENHAUSEN (NB5853) to MECKLAR (NB5341). At 1100 hours additional enemy forces were reported crossing the international boundary between BLANKENBACH (NB7051) and HONEBACH (NB6643). Artillery attacks continued throughout the day, but no major ground attacks materialized. Civilian traffic on primary and secondary roads is hindering brigade supply operations.

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Table 6

Sample Battalion Task Force (TF) Situation Reports

ORGANI- ZATION	LOCA- TION	OPERATIONAL STATE	RESULTS
TF 1-78	NB5552	DEFEND	Heavy long-range artillery attacks occurred along entire line shortly after midnight, but covering force action kept enemy units off MBA until 0900 when long range engagement by task force elements was initiated. Long range direct fires and artillery exchanges continued as the enemy moved forces up to engage MBA units. No significant ground attack of MBA occurred during the period. A/1-23 Cav accomplished passage of lines rearward about 0900. Heavy east-to-west civilian traffic hindered operations.
TF 1-77	NB5444	DEFEND	Shortly after TF 1-23 withdrew through TF 1-77 units, long range direct fires were initiated against forward enemy units. Throughout the day long range direct fire and artillery engagements continued as the enemy moved forces up in preparation for his attack; however, no major enemy attack was initiated during the period.
TF 1-2	NB5149	BRIGADE RESERVE	Received moderate to heavy long range artillery throughout the day. Remained in reserve positions vicinity ROTENBURG (NB5150) throughout the day.

Logistics

Logistics estimates, Class III and V<sup>3</sup> supply status, and equipment status make up the contents of the logistics files.

Report Files

The offensive scenario contains reports intended for insertion during an experiment or exercise. The reports provide information about events that have occurred since the last update. Specifically, they are new intelligence reports intended to stimulate interaction between the G2 and G3 players. The defensive scenario was not augmented with similar probe materials.

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<sup>3</sup>Class I refers to subsistence supplies (rations); Class III to petroleum, oil and lubricants (POL); and Class V to ammunition.

## Reference Files

The reference file includes technical reference material that would be found in manuals such as Field Manual 101-10-1, Staff Officers Field Manual; Organizational, Technical, and Logistic Data (Headquarters, 1976) or Field Circular 101-5-2, Staff Officers Handbook (US Army Command and General Staff College, 1987). The reference file contains no tactical situation data.

### Personnel

Strengths. Data for typical TOE authorizations are provided by unit type in terms of officers, enlisted and total.

Battle Losses. Tables of projected battle losses in terms of percent of strengths are presented by type of operation and status of division. Also battle losses are presented by branch, type of loss, and division type.

Prisoners of War. Data on projected numbers of prisoners of war taken are given for equal forces in terms of percent of enemy strength and for unequal forces in terms of number per day by operation type.

### Intelligence

Composition. Typical compositions of opposing forces (OPFOR) are presented by combat, combat support and combat service support branches.

Strengths. OPFOR strengths are indicated by unit type in terms of total personnel strength.

Equipment. Types and quantities of equipment are given by OPFOR unit types.

Equipment Characteristics. Characteristics of OPFOR equipment are provided. Examples of characteristics include type of armament, crew size, speed, range, and fuel.

### Operations

Organization. J-series task organizations are presented for mechanized division, maneuver brigade, division artillery (DIVARTY), division support command (DISCOM), aviation brigade and division troops.

Equipment. Types and quantities of equipment are provided by unit types.

Equipment Characteristics. Characteristics of friendly equipment are provided. Examples of equipment classes include light armored vehicles, tanks, helicopters, and electronic warfare.

Minefields. Information on the number of mines required for emplacement is furnished.

## Logistics

Supply. Data are provided on consumption and usage rates for Classes I, III (maneuver), III (non-maneuver, division base), and V. Basic loads are indicated for Class V.

Transportation. Payloads by vehicle and road type are furnished.

## BASELINE SOLUTIONS

The offensive scenario is designed for stimulating coordinated participation by G2 and G3 players. The tactical problem requires the G2 to produce an intelligence estimate, the G3 to produce an operations estimate, and the two of them together to produce a division operations order or fragmentary order. Example products were developed based upon current doctrine and the scenario situation. Techniques for evaluating and scoring these staff products can be found in Krumm, Robins and Ryan (1973).

### Division Intelligence Estimate

The standard intelligence estimate analyzes the characteristics of the area of operations and the enemy situation to determine the extent to which they can affect the accomplishment of the mission. This estimate draws conclusions and makes recommendations, as appropriate, concerning the effect of the area of operations on friendly and enemy forces, probable enemy courses of action, enemy vulnerabilities which can be exploited, and the feasibility of various friendly courses of action.

As a supplement to the offensive scenario a complete Division Intelligence estimate is available (Carter, Ross, Michel and Fallesen, 1988). The estimate can be used as a baseline to which the G2 plans officer's performance can be compared.

### Division Operation Estimate

The standard operation estimate analyzes factors affecting the accomplishment of the tactical mission to determine all reasonable courses of action and the effect of these courses of action on friendly forces. The estimate recommends a course of action for accomplishing the mission.

As a supplement to the offensive scenario data package a complete baseline Division Operations estimate is also provided (Carter et al., 1988). Again this can be used as a baseline for comparative assessment.



### Division Operations Order

A Division operations order (OPORD) is also provided as a supplement to the offensive scenario. The OPORD defines a recommended course of action from the operations estimate. The operations order is in abbreviated form as it contains only annexes A (intelligence) and B (operations overlay, [see Figure 3]).

### Procedures of a Division Staff

In the usual exercise of  $C^2$  staffs in Army tactical operations, the command group performs doctrinally-specified staff planning activities. These staff planning activities are described in Army publications such as FM 100-5, Operations (Headquarters, 1986), FM 101-5, Staff Organization and Operations (1984) and Command and General Staff College Student Text 100-9, The Command Estimate (1986). These publications describe what staff actions should be performed but provide very little description of how the staff actions are to be performed. Knowledge of these procedures is critical for staff performance research, and such knowledge is needed also to understand better the contents and use of these scenarios. A description of these staff functions and tasks has been developed and is available in Carter, Archer and Murray (in preparation), as well as in supplemental materials to the scenario data packages.



## REFERENCES

- Carter, Jr., C. F., Archer, M. A., and Murray, A. E. (in preparation). Description of selected Army staff functions: Targets for planning aids. ARI Research Note. Alexandria, VA: ARI.
- Carter, Jr., C. F., and Ross, C. G. (1987). Training technology for command and control (C<sup>2</sup>) systems. Technical Report 0001-07. Leavenworth, KS: Science Applications International Corp.
- Carter, Jr., C. F., Ross, C. G., Michel, R. R., and Fallesen, J. J. (1988). Battle scenarios to exercise division staffs: Example staff products. ARI WP LVN-88-2. Fort Leavenworth, KS: ARI.
- Crumley, L. M. (Ed.). (1985). Design of a modular laboratory for research on tactical command and control. ARI WP FLv FU-85-2. Alexandria, VA: ARI.
- Headquarters, Department of the Army. (1986). Field Manual 100-5, Operations. Washington, DC: author.
- Headquarters, Department of the Army. (1976). Field Manual 101-10-1, Staff Officers Field Manual; Organizational, Technical and Logistic Data. Washington, DC: author.
- Headquarters, Department of the Army. (1984). Field Manual 101-5, Staff Organization and Operations. Washington, DC: author.
- Krumm, R. L., Robins, J. E., and Ryan, T. G. (1973). Research on tactical military decision making: III. Predictor variables and criterion measures. ARI Technical Research Note 229. Alexandria, VA: ARI. (AD A765 457)
- Michel, R. R., and Riedel, S. L. (in preparation). Effects of expertise and cognitive style on information use in tactical decision making. ARI Technical Report. Alexandria, VA: ARI.
- Packard, B. J., McKeown, P. E., Fallesen, J. J., Solick, R., and Halpin, S. M. (1987). Design document: Preliminary requirements for the Experimental Development, Demonstration, and Integration Center (EDDIC). WP LVN-87-1. Alexandria, VA: ARI.
- Tolcott, M. A., Marvin, P. F., and Lehner, P. E. (in preparation). Evolutionary decision making: Effects of early decisions on later judgments in an evolving situation. In S. L. Riedel and M. Drillings (Eds.), Proceedings of the Fifth Annual Workshop on Command and Control Decision Aiding, ARI Technical Report. Alexandria, VA: ARI.
- TRADOC. (1985). TRADOC Common Teaching Scenario. Washington, DC: U.S. Government Printing Office.

U.S. Army Command and General Staff College. (1987). Field Circular 101-5-2, Staff Officers Handbook, Fort Leavenworth, KS: author.

U.S. Army Command and General Staff College. (1986). Student Text 100-9, The Command Estimate. Fort Leavenworth, KS: author.