COMBINED ARMS IN A NUCLEAR AND CHEMICAL ENVIRONMENT -- PHASE IIB

SUMMARY OF EVALUATOR RATINGS AND COMMENTS

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THE CANE EXERCISES. CANE (Combined Arms in a Nuclear and Chemical Environment) is a series of field exercises to evaluate the ability of US Army combined arms units to conduct sustained combat operations in a simulated nuclear and chemical environment.

The CANE exercises were performed in three phases: I, IIA and IIB. Phase I, Feb-May 1983, was done with squad and platoon-size mechanized infantry units. Phase IIA, April 1985, was done with platoon-size armored units. Phase IIB, March 1988, was done with battalion-size tank-heavy combined arms units. This summary pertains only to CANE IIB, the largest and most recent of the exercises.

Design of CANE IIB. The CANE IIB exercise was conducted on a 15 X 22 km test site at the US Army Combined Arms Test Center, Fort Hood, Texas. The site includes woods, stream beds, open areas, and rolling hills. The force structures and the battlefield environment were intended to simulate Central European conditions in the current time frame. The weather was cool to warm (maximum temperature approximately 85 °F) and mainly clear and dry, with two short heavy rains.

The exercise consisted of four 96-hour scenarios, performed between March 1 and March 23. Each scenario involved ten engagements between opposing combined arms forces, generating a total of 40 separate engagements. The first and fourth scenarios were conducted with no nuclear/chemical threat. The second and third scenarios included operations involving both persistent and non-persistent simulated chemical agent and simulated nuclear radiation. One combined arms force (CAF) was the "blue" force for the first two scenarios and the other CAF was "blue" for the second two scenarios.

Performance was evaluated only for the "blue" CAF. In the two nuclear/chemical scenarios, only the "blue" CAF was subject to chemical attacks.

Each of the two CAFs consisted of 4 tank-heavy maneuver companies with normal organic support units (scout, medical, supply, mortar, maintenance, communication), plus a 155-mm artillery battery, engineer platoon, Stinger air defence artillery section, Vulcan air defence artillery section, decontamination platoon, smoke squad, ground surveillance radar section, and forward support battalion. The exercises were supervised by a group of 17 controllers.

The units were given no special training in anti-chemical defence beyond that in standard US Army training programs and skill qualification tests. For most participants, this probably involved 5-6 hours of previous experience in wearing the gas mask and protective clothing.

The US Army has five standardized levels of individual soldier protectedness that commanders may designate, depending on the radiological/chemical threat, the temperature, and the mission. The five levels, called MOPP (mission-oriented protective posture), are:

MOPP 0: Ordinary battle dress. Mask and hood carried but not worn.

MOPP 1: As above, plus chemical protective jacket and trousers worn. In hot weather, jacket may be left open.

MOPP 2: As above, plus protective overboots worn.

MOPP 3: As above, except mask and hood worn.

MOPP 4: As above, except jacket is closed and protective gloves are worn.

In the CANE IIB exercise, operations in the nuclear/chemical scenarios commenced with the "blue" CAF in MOPP 2. During the course of operations, the commander of the "blue" CAF ordered various MOPP levels, depending on conditions. Upon notification that a chemical attack had commenced or was imminent, personnel were required to enter MOPP 4. Operations in MOPP 4 then continued for up to 6-8 hours. Major events conducted by the "blue" CAF were also conducted in MOPP 4.

The test design specified that tank hatches be closed during all operations at MOPP 4. An alternative would have been for tank crews to be in MOPP 4 when appropriate but to permit open hatches at the discretion of commanders. During the exercise, the order to close hatches could not be fully enforced, owing to the preference of tank commanders to have the superior visibility of open hatches. Since the effects of MOPP 4 were not systematically tested with hatches open, the effects of MOPP 4 by itself were not evaluated. Nevertheless, the Brigade Commander for CANE IIB expressed his individual judgement regarding the separate effects of MOPP 4 and of closed hatches, as quoted below.

Data collection. Data was collected by various instruments and by a group of 187 evaluators attached to the "blue" CAF. Each evaluator was drawn from the same type of unit whose performance he was assigned to evaluate. Evaluators scored the performance of units on a standard list of tasks as adequate ("go"), borderline, inadequate ("no go"), not observed, not done, or not applicable to the specific situation. This summary deals only with evaluator scores, not with data collected by instruments.

In the tables below, the quantity "%Adequate" is calculated as:

100 X adequate ÷ [adequate + borderline + inadequate]

The term "number" denotes the number of performances scored by the evaluators. All data and page references for tables are from the unclassified report, Combined Arms in a Nuclear and Chemical Environment. Phase IIB (Battalion Level). TEXCOM Combined Arms Test Center, Fort Hood, TX. Report 88-FD-TCAT-0101-B. October, 1988. 1032 pp. The excerpt from the Brigade Commanders memorandum is from Appendix N of the same report.

Summary of performance evaluations.

1. For some categories of task, the overall percentage of "adequate" performance scores was lower for the scenarios in the simulated nuclear/chemical environment than for the scenarios without nuclear/chemical threat. An example is:

Performance of tactical movements by CAF units (Table 2-14)

2. For many of the task categories evaluated, however, high MOPP did not interfere significantly with mission performance, as judged by evaluator scores. Examples of such categories are:

Performance of offensive operations by the CAF (Table 2-26)
Reorganization and consolidation by the CAF (Table 2-28)
Performance of defensive operations by CAF units (Table 2-33)
Howitzer section (Table 3-15)
Mortar section execution of fire mission (Table 3-40)

3. The effect of high MOPP on performance evaluations (and on data collected by instruments), may be inseparable from the effect of closing hatches, since the test protocol stipulated that hatches be closed when commanders ordered MOPP 4.

PERFORMANCE OF TACTICAL MOVEMENTS BY CAF UNITS (Table 2-14)

MOPP	Number	%Adequate
0	1,100	93
0-2	425	85
3-4	475	83

PERFORMANCE OF OFFENSIVE OPERATIONS BY THE CAF (Table 2-26)

Unit	MOPP	Number	%Adequate
Co	0	1237	92
Co	0-2	384	95
Co	3-4	1037	95
Bn	0	94	97
Bn	3-4	85	95

REORGANIZATION AND CONSOLIDATION BY THE CAF (Table 2-28)

AFTER ATTACK

Unit	MOPP	Number	%Adequate
Co	0	510	95
Co	0-2	250	97
Co	3-4	404	98
Bn	0	31	100
Bn	3-4	23	100

AFTER DEFENCE

Co	0	332	99
Co	0-2	172	87
Co	3-4	161	97
Bn	0	36	100
Bn	0-2	19	100
Bn	3-4	11	100

PERFORMANCE OF DEFENSIVE OPERATIONS BY CAF UNITS (Table 2-33)

Unit	MOPP	Number	%Adequate
Co	0	820	97
Co	0-2	338	89
Co	3-4	551	93
Bn	0	140	98
Bn	0-2	45	100
Bn	3-4	114	100

HOWITZER SECTION (Table 3-15)

MOPP	Number	%Adequate
0	1,928	99
0-2	175	99
3-4	1,288	99

MORTAR SECTION EXECUTION OF FIRE MISSION (Table 3-40)

MOPP	Number	%Adequate
0	531	100
0-2	24	100
3-4	525	100

EXCERPT FROM MEMO FROM THE CANE IIB BRIGADE COMMANDER TO COMMANDER, FORT HOOD (Appendix N)

"In general, however, two observations are the most important. First, the units very quickly discovered that they could operate in mild weather quite well in MOPP IV and second, that the MOPP IV did not degrade their operation nearly as much as closed hatches. The unit was required to close and keep closed hatches of their tracks while working in a persistent agent. The unit's limited success under these conditions resulted from being very familiar with the terrain. It is my opinion that the units could not have successfully attacked over long distances. Closed hatches causes severe command and control problems, especially in the attack. We really need to be absolutely sure it is necessary to keep hatches closed before we decide to make it doctrine."