

Armor on the Chemical Battlefield

—commanders face unique decisions

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Editor's note:

Readers should realize that this article obviously is based on Canadian doctrine and does not necessarily reflect current or developing US doctrine.

Outnumbered western forces must fight at peak efficiency to defeat the masses of Soviet armor. Therefore, it is not surprising that most main battle tanks (MBTs) in the NATO inventory are fitted with NBCW collective protection utilizing an overpressure system.

Such protection enables the crew to fight without wearing individual masks, a factor that contributes to an optimum level of human performance. In addition, AFV interiors are difficult, if not impossible, to chemically decontaminate.

NBCW collective protection, combined with proper drills, preventive inspections, and monitoring can keep the interiors of tanks chemically "clean." However, armor commanders equipped with such collective protection in a chemically contaminated environment are forced to make a variety of decisions.

Each of these decisions comes with a number of staff problems. Both decisions and follow-on staff activity require chemical intelligence.

Hatch Open or Closed?

The first major decision a commander of a unit employing AFVs with collective protection makes is

whether to operate with hatches open or closed. This question is more important than it first appears.

Present collective protective systems require hatches to be closed to provide any guaranteed protection. Operation with the hatches open risks the possibility that contamination could get inside tanks. Although most tank crews expect to go into close combat with hatches down, this decision becomes more difficult further to the rear when the only threat is chemical.

Commanders must weigh delays associated with the vision limitations imposed by closed down operation against the likely chemical threat. For example, no crews want the task of loading tank trains or tank transporters while closed down or while wearing masks, particularly at night. A decision to leave hatches open under these circumstances calls for chemical intelligence.

Chemical intelligence tells the armor commander whether he is likely to be attacked, what the enemy's intended use of chemicals is likely to be, as well as the type of agent expected. He needs this information well in advance before undertaking an activity such as loading tank trains.

This information may well be strategic in nature if these activities are taking place before the actual outbreak of hostilities and may, in fact, be related to the strategic value of another service's assets—such as a nearby airfield. Therefore, as simple a decision as to whether to leave AFV hatches open or closed calls for

dissemination of what might be considered strategic chemical intelligence down to a tactical level.

Exit and Entry

Yet another decision faces an armor commander operating his tanks with hatches closed and NBCW collective protective on systems functioning. He must decide when crews should exit this collective protection.

For example, a Canadian commander must consider that drills take an hour to an hour and 15 minutes from time of exit to time of re-entry.¹ Only more effective, quicker-acting decontaminants can speed up these procedures.

Moreover, these drills must be done in a safe location, preferably with solid overhead protection. As can be seen in photo, crew members are extremely vulnerable while removing contaminated suits before re-entering their tank. Moreover, camouflage nets and foliage must be stripped away, at least from the safe area that is decontaminated around the hatch for re-entry (see figure).

Contaminated crews caught outside the protection of their AFV cannot re-enter the armor protection of their vehicle when shells start falling without contaminating the interior.

Chemical intelligence is vital when making the decision to exit and re-enter. First, there's the question of a safe area. Again, it's a question of enemy intentions. An area selected for exit and re-entry drills must be relatively safe from chemical attack

Intelligence (not specifically resources on a more urgent basis is likely in the next 24 hours. Chemical intelligence has to provide this information.

Dealing with casualties also calls for chemical intelligence. Armor commanders must decide quickly when to evacuate the wounded from the collective protection of their AFVs. While crew monitoring may determine that the exterior is safe for the movement, chemical intelligence is required to analyze enemy intentions so safe areas for medical facilities are identified.

The type of agent affects the decontamination time and determines the impact on other troops. However, the enemy's future chemical intentions are also very much a part of this appreciation. Scarce decontamination resources may not be committed if another attack requiring these

and artillery shelling, particularly during the period while crewmen remove "dirty" suits prior to re-entering the "clean" interiors of their AFVs. Chemical reconnaissance is necessary to locate uncontaminated areas both at present and in the future. Dissemination of this information is also vitally important. Individual crew members, once outside in their individual protective ensembles (IPES) have difficulty receiving warnings. Timely information is vital not only for these crewmen but also for other troops.

If it proves impossible for crews to exit, then armor commanders may have to order, well in advance, other troops already outside collective protection to undertake tasks normally carried out by crews of MBTs—such as ammo replenishment or provision of security elements.

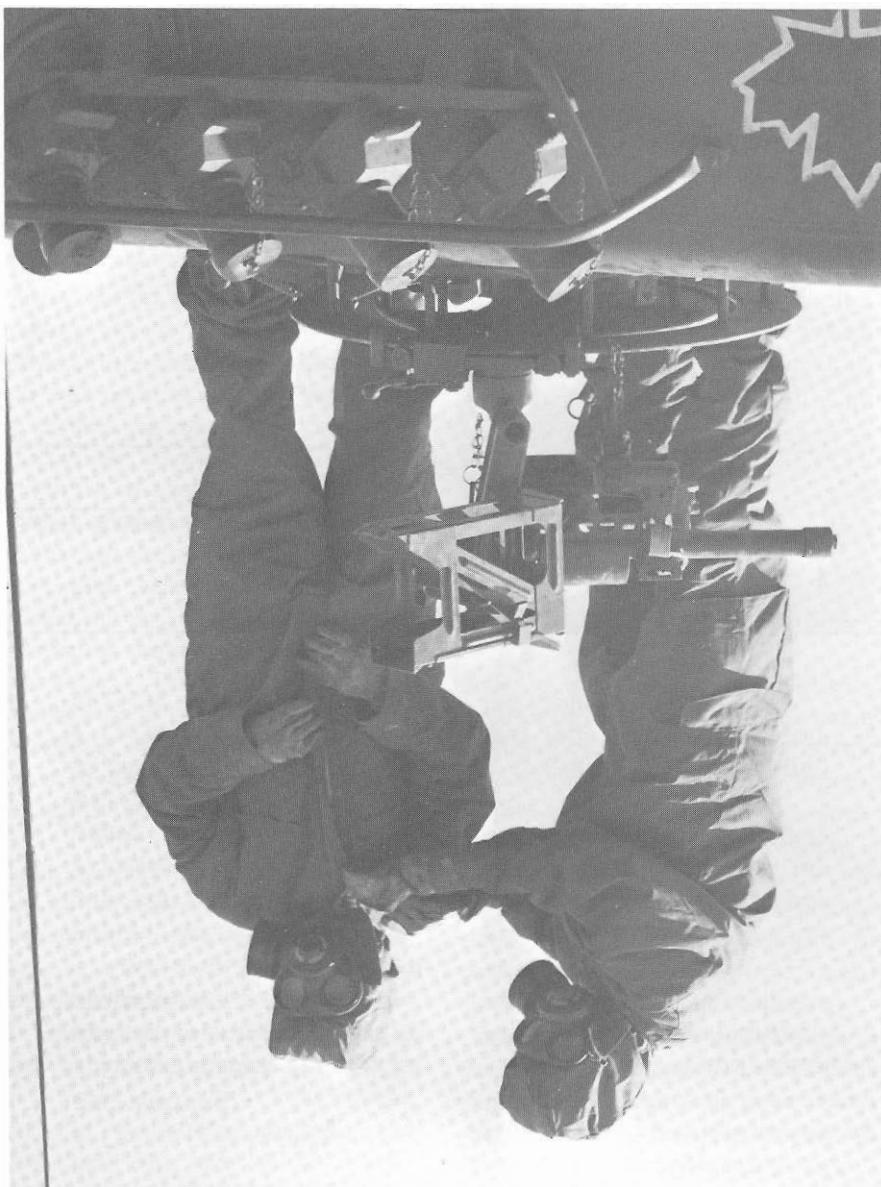
Moving Contaminated Vehicles

Commanders may also have to decide whether to move tanks chemically contaminated on their exteriors into uncontaminated areas. Table 1 outlines some of the factors armor commanders must consider when making this decision.

Table 1.
Factors in Moving
Chemically Contaminated
AFVs

- Tactical requirement for the contaminated AFVs.
- Type of chemical contamination on the tanks.
- Impact of this contamination on other friendly troops.
- Time required to decontaminate these tanks using available resources.

Contaminated tank crew remains vulnerable prior to reentry.



Similarly, AFV operations closed down for days on end will require location of safe areas for rest and relief. Chemical intelligence has to provide advice for armor commanders as to "where" and "when" such rest and relief can be obtained.

Summary

No matter what a commander

decides, there will be staff problems associated with operations of tanks with collective protection in a chemical warfare environment. Table 2 lists some of the staff activity required.

Clearly a staff officer's life is not made easier by the introduction of collective protection. Moreover, most of these problems cannot be dealt with

unless chemical intelligence is collected, collated, analyzed, and disseminated in a timely manner. It is critical that chemical intelligence be sought as actively as any other information.

Knowledge of Soviet chemical intentions will only be achieved if Warsaw Pact doctrine and procedures for using chemicals are well understood. Such indicators of enemy intent should be identified so that analysis and dissemination can take place at tactical levels.

Moreover, improved dissemination of chemical intelligence will have to be considered in any future battlefield information management system if armor commanders are to make the correct decisions when employing MBTs with collective protection in a chemical warfare environment.

Table 2. Some Staff Problems Associated with NBCW Collective Protection

- Chemical attack detection and warning.
- Determination of areas for exit and re-entry of collective protection.
- Advice on the routes on which contaminated vehicles can or should move.
- Advice on the impact of using contaminated AFVs with troops not yet exposed to chemicals.
- Organize control of hazards spread by moving

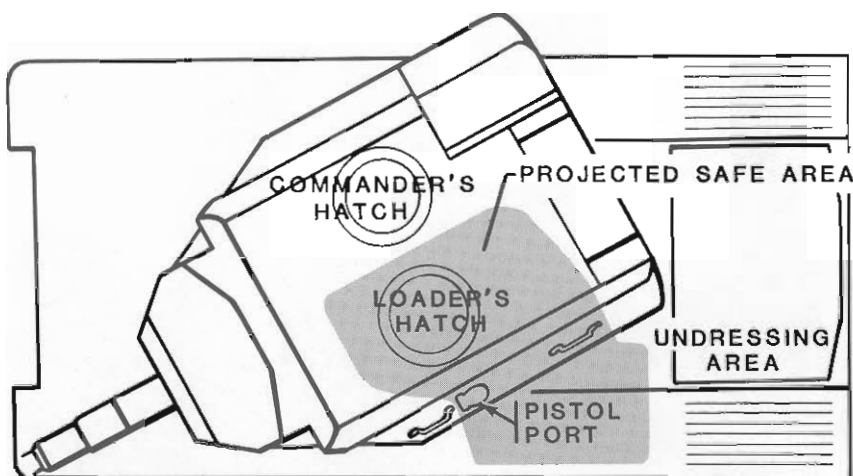
chemically contaminated tanks.

- Organize relief and rest of AFV crews in uncontaminated areas or in appropriate collective protection.
- Organize evacuation of casualties from inside collective protection into uncontaminated medical facilities.
- Organize maintenance and replenishment of contaminated vehicles.

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Safe Area



GUN AT 11 O'CLOCK

MAJ F. R. Thomas is currently serving in the NATO plans section of the Canadian National Defence Headquarters. An armored officer, he has served in tank, tracked, and wheeled reconnaissance units. Overseas tours have taken him to the United Kingdom, West Germany, Cyprus, Syria, Israel, and the Indian sub-continent. Parachute qualified, MAJ Thomas is a graduate of the Pakistan Army Command and Staff College, the Canadian Land Forces Command and Staff Course, and the United Kingdom Tank Technology Course. His staff assignments have covered personnel, equipment procurement, doctrine writing, and exercise planning.