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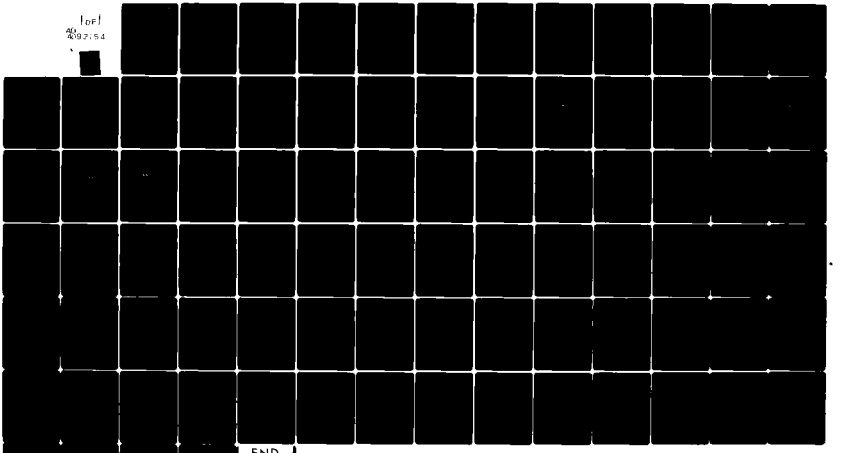

DNA 5093F

CONCEPT FOR THEATER INTEGRATED NUCLEAR/NONNUCLEAR OPERATIONS

The BDM Corporation
7915 Jones Branch Drive
McLean, Virginia 22102

30 October 1979

Final Report for Period 1 June 1979—30 October 1979

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This report presents a concept for theater integrated nuclear/nonnuclear operations which embraces peacetime planning, organization, and training for wartime operations prior to, concurrent with, and following first use of nuclear weapons by either side. The Central Battle and Battlefield Interdiction are both treated.

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PREFACE

The successful conduct of theater integrated nuclear and nonnuclear operations against the Soviet/Warsaw Pact (WP) threat will require the most effective utilization of U.S./NATO resources in all facets of operations to include fire support/weapons employment, maneuver, intelligence, planning, NBC protection, command, control, and communications (C^3), combat support, and combat service support. This paper is intended to provide a proposed concept for operations of corps and subordinate units involved in theater integrated nuclear and nonnuclear operations. A draft, Operational Concept for the Tactical Employment of Nuclear Weapons on the Integrated Nuclear/Nonnuclear Battlefield, has been provided by BDM to DNA/TRADOC under this contract and is an integral part of the overall concept of integrated operations. A summary of that draft is included as an appendix to this paper but will be covered in the main body only to the extent necessary to address the other facets of the overall concept.

The concept presented is intended for application to the force structure in being and programmed through 1986 so that it can result in an improved capability for operations in the near-term and provide utility in the Division 86 effort. Although not dependent upon new systems for implementation, it does indicate some near-term modifications to organizations and procedures as well as longer term improvements in systems which will support the concept and result in still further improvements in overall force capability.

While this paper deals in terms of NATO and Soviet/WP forces and capabilities, the principles are equally applicable to United States operations with different allies and against different threats.

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EXECUTIVE SUMMARY

The capability to conduct effective theater integrated nuclear/nonnuclear operations is necessary for successful implementation of the NATO strategy of deterrence and flexible response. Since the Soviets/WP possess theater nuclear weapons and a doctrine for employing those weapons in integrated operations, the option of creating a nuclear environment on the battlefield does not belong to NATO alone. Therefore, NATO forces from the beginning of any conflict must conduct operations employing tactics which are not only geared to mission accomplishment, but also provide maximum protection in the face of potential or actual employment of Soviet theater nuclear weapons.

Operations in an integrated nuclear/nonnuclear environment should be conducted so that tactics are essentially independent of whether or not nuclear weapons have acutally been employed. These tactics must be geared to successful mission accomplishment whether supported by nuclear or nonnuclear fires. Units should be massed above company level only when and so long as required to accomplish a given mission and then rapidly dispersed. Operations security (OPSEC) measures must be emphasized, particularly when units are massed.

Tactics must emphasize the use of firepower and maneuver including counteroffensive action in the Central Battle whil battlefield interdiction is destroying, degrading, disrupting or delaying Soviet/WP second echelon units. Those tactics of the Central Battle must be capable of successfully dealing with Soviet/WP meeting engagements as well as deliberate breakthrough operations. Intelligence assets should be used to identify exposed flanks, weakened attack columns, and similar targets for counteroffensive actions which can exploit Soviet weaknesses.

Selective employment plans (SEP) should be developed in advance, and nuclear options considered as well as nonnuclear fire support in all operational planning. Intelligence and target planning assets must support continuous targeting of Soviet/WP forces. To the maximum extent possible the same procedures and resources for target acquisition, intelligence

processing, fire planning and mission execution will be used for both nuclear and nonnuclear fire support.

Maneuver plans must not only be supported by adequate nuclear and/or nonnuclear fires, but also by flexible and responsive logistics operations. Logistics organizations and procedures must consider the nuclear environment and be capable of supporting mobile forces in counter-offensive operations. The organization of Brigade Support Battalions and the provision for increased transportation, along with improved procedures will greatly facilitate that support.

In summary, the principal elements of the concept for integrated nuclear/nonnuclear operations are:

- All operations should assume a nuclear environment.
- Maneuver planning should consider both nuclear and non-nuclear fire support alternatives.
- U.S./NATO Operations must:
  - emphasize dispersion and mobility,
  - utilize offensive envelopment tactics against Soviet/WP columns whose second echelon forces have been delayed, disrupted, or destroyed by nuclear and/or nonnuclear fires, and
  - avoid battles of attrition which maximize Soviet/WP capabilities.
- Logistics systems must be survivable, resilient, and capable of supporting both offensive and defensive operations.
- Transition signatures indicating use of nuclear weapons must be avoided.

The conduct of successful integrated nuclear/nonnuclear operations on the battlefield will require adequate training of individuals and units in all aspects of integrated operations. Such training must not only include measures for protection against nuclear effects, radiation monitoring, and decontamination procedures, but also operations exploiting the use of nuclear weapons, reconstitution, handling of mass casualties, and

mission accomplishment with degraded resources. The requirements for integrated operations must be incorporated into every facet of doctrine and training so that individuals and commanders are technically and psychologically prepared for the nuclear environment they will encounter.

SECTION 1
INTRODUCTION

1.1 PURPOSE.

To develop a concept for theater integrated nuclear/nonnuclear operations which will improve the capability of United States Army forces to operate successfully with other NATO forces on an integrated nuclear and nonnuclear battlefield. The concept is intended to provide a basis for incorporating theater nuclear considerations into all aspects of doctrine, planning, and execution of offensive and defensive operations.

1.2 SCOPE.

This paper is intended to provide an overall statement of a proposed concept for the conduct of theater integrated nuclear and nonnuclear operations. The conduct of operations by corps and subordinate units is treated, with consideration of factors at echelons above corps (EAC) which influence those operations. The paper is not intended to treat each aspect of the concept for integrated operations in the detail which ultimately will be required to provide the training and guidance for actual operations. Rather, the paper is designed to provide a framework over the necessary range of topics and considerations so that detailed doctrine, tactics, instruction, and developmental guidance can be accomplished in consonance with the proposed concept.

This paper does not duplicate the information on Soviet/WP echelonment operations and the concept for US/NATO theater nuclear weapons employment contained in the draft HQ TRADOC/USAFAS Operational Concept for the Tactical Employment of Nuclear Weapons on the Integrated Nuclear/Nonnuclear Battlefield, a summary of which is provided as Appendix I. That paper should be used in conjunction with this to obtain the overall statement of the operational concept as it applies to nuclear weapons employment as an element of fire support as well as to maneuver, combat service support, and other topics.

The body of this paper begins with an examination of the basis for an integrated operations capability. This serves to place the concept for integrated operations in its proper perspective.

The concept of maneuver in offensive and defensive integrated operations is discussed, to include examples of operations to counter Soviet/Warsaw Pact (WP) advances along multiple avenues of attack and deliberate breakthrough operations. The use of nuclear and/or nonnuclear fires to support the maneuver forces is discussed to provide some examples and details beyond the coverage of the nuclear weapons employment paper summarized in Appendix I.

Theater considerations such as the allocation and control of nuclear weapons and other assets are covered to the extent that these factors influence integrated nuclear/nonnuclear operations. In this respect the communications and procedures pertaining to nuclear weapons employment are addressed.

The Joint Air Operations section recognizes deficiencies in current Army-Air Force interfaces and addresses candidate planning concepts, implementation, and employment options associated with the use of nuclear-capable TACAIR in support of integrated operations. In exploring planning concepts, emphasis is upon the needed adaptations of concepts, systems, and contingency options related to the use of TACAIR and nuclear weapons against battlefield targets. Implementation of the candidate concepts, systems, and plans are examined for impacts upon C^3 requirements, the generation of targets for near-real-time strike and reconnaissance utilization, and the applications of current technologies. Where particularly promising, new technology applications are suggested.

The activities and procedures related to employment of nuclear weapons are examined to identify steps in planning and execution which can be made identical for both nuclear and nonnuclear operations to avoid the need for transition measures. Operations security measures are identified to assist in masking transition to nuclear employment.

The concept for using the same intelligence, C^3, and fire planning procedures for employment of nuclear and nonnuclear weapons in integrated operations is treated in more detail than is provided in the nuclear employment paper.

The combat service support necessary for the conduct of successful integrated operations is discussed to include need for and means of achieving increased mobility and responsiveness in offensive operations. Reorganization of Division Support Command (DISCOM) elements to provide improved support to committed brigades is addressed, as is the need for additional transportation in the Corps Support Command (COSCOM). The requirements for and means of achieving an adequate force reconstitution capability are also discussed.

The paper addresses implications for organizational and weapons/system requirements of other force elements in addition to combat service support. The need for additional NBC monitoring and decontamination capability is stated as is the necessity for harder, more mobile equipment and a mix containing more long-range nuclear and nonnuclear weapons. The need for accompanying improvements in system accuracy and target acquisition systems is also discussed.

Finally, the importance of training to achieve a capability for successful integrated nuclear/nonnuclear operations is emphasized, to include coverage of the scope of subjects as well as the types and levels of training needed.

SECTION 2
BASIS FOR AN INTEGRATED OPERATIONS CAPABILITY

The capability to conduct effective theater integrated nuclear/nonnuclear operations is fundamental to implementation of the NATO strategy of deterrence and flexible response.

Deterrence is enhanced in several ways by such a capability. As seen by the Soviets/WP, an integrated nuclear/nonnuclear capability lends credibility by demonstrating the seriousness with which the nuclear option is held. Further, if the Soviets/WP perceive the echeloned forces to be held at risk by US/NATO nuclear/nonnuclear systems they will likely be forced to disperse forces, spread out march units, and take other actions which will delay and disrupt their doctrinal schedule thereby decreasing their confidence in success. Finally, a US/NATO posture for operations in a nuclear environment can deny to the Soviet/WP much of the advantage attendant with preemption.

Should deterrence fail, an integrated nuclear/nonnuclear capability is essential to the ability of US/NATO forces to absorb and respond to Soviet/WP initiation of nuclear operations or to undertake nuclear operations as a NATO initiative. NATO could employ its theater integrated nuclear/nonnuclear capability in the conduct of the direct defense or against deeper targets which carry heightened escalatory impact. This paper deals with both of those NATO options within the framework of two concurrent battles: (1) to defeat the leading echelons of the Soviet/WP armies--the Central Battle, and (2) to delay, and destroy the uncommitted echelons--battlefield interdiction.

It must be emphasized that the option of creating a nuclear environment on the battlefield does not belong to NATO alone. Since the Soviets/WP now possess a theater nuclear capability and a doctrine that provides for use of theater nuclear weapons in combined arms operations, US/NATO plans and actions from the initiation of any conflict must consider the nuclear threat environment (A summary of Soviet tactical nuclear doctrine is provided as Appendix II).

Open Soviet literature contains many references to the decisiveness of nuclear war and the requirement that nuclear operations be employed in mass as an element of surprise. The effects of nuclear strikes are to be exploited by highly mobile forces prepared to attack through contaminated areas.

Examination of Soviet/WP military hardware produces a picture of an army equipped for highly mobile operations of the type necessary to execute rapid exploitation of breakthroughs produced by nuclear fires. Tactical nuclear weapon delivery systems form a complementary overlay on their conventional forces which are trained to operate in a chemical and nuclear environment. The complete integration of tactical nuclear weapons in Soviet military thinking has had singularly positive qualitative and quantitative impacts on their conventional forces. The introduction of nuclear weapons resulted in recognizing a requirement for upgraded C^3 which benefited the conventional forces as well. Mobility and collective crew protection are qualities embodied in their maneuver and fire support formations. These are exactly the characteristics required to conduct high-speed exploitation of opportunities created by nuclear weapons.

SECTION 3

CORPS/DIVISION OPERATIONS BEFORE, DURING, AND AFTER INITIAL NUCLEAR USE

3.1 GENERAL.

Operations in an integrated nuclear/nonnuclear environment should be conducted so that the tactics of maneuver units are relatively independent of whether or not nuclear weapons have been employed. These tactics must be geared to successful mission accomplishment whether supported by nuclear or nonnuclear fires. Similarly they must be successful whether or not Soviet/WP theater nuclear weapons are used. This means that at all times during the conflict NATO forces must employ sound tactics geared to taking maximum advantage of their own strengths and the enemy's weaknesses. At the same time these tactics must provide the maximum protection in the face of potential or actual employment of Soviet/WP theater nuclear weapons.

3.2 OPERATIONS IN A NUCLEAR ENVIRONMENT.

Operations in a nuclear environment (which is the environment that must be assumed from the beginning of any conflict between NATO and the Soviets) must consider the effects of nuclear weapons (Appendix III), and the measures necessary to minimize the impact of these effects on NATO forces. Since the defense of allied territory is a primary NATO concern, a successful forward defense must be conducted in this nuclear environment. NATO forces must delay, disrupt, or destroy the Soviet/WP second echelon by battlefield interdiction while defending against the first echelon and employing counteroffensive actions against vulnerable flanks or weakened march columns. Operational planning should also be geared toward offensive action to secure defensible terrain which will contribute to the termination of the conflict on terms acceptable to NATO.

3.2.1 Countermeasures.

NATO combat and logistical units can take the following countermeasures to reduce the possibility of nuclear attack and to increase survivability of units and resources during and subsequent to nuclear attack.

3.2.1.1 Dispersal. A nuclear weapon, like any other explosive device, has a radius of damage. Both the likelihood of its use and its effectiveness can be reduced by dispersing units and resources. Units and resources clustered together in a relatively small area present a lucrative target. Additionally, the successful employment of a nuclear weapon on such a target would result in extensive casualties and damage. Keeping units and resources separated by appropriate distances reduces the large single target into many smaller targets which are more difficult to detect, more difficult to hit, and do not lend themselves to the employment of a single nuclear weapon. Considering Soviet nuclear weapons and doctrine, NATO units should disperse into company-size units and mass only as and when required for mission accomplishment. Figure 3.1 portrays the dilemma stemming from the needs to disperse and to mass.

3.2.1.2 Unit Area Configuration. Unit and resource survivability can be increased by giving consideration to position area configuration. For example, a unit occupying a position in a circular configuration is more likely to be destroyed by a single weapon than one in a linear configuration. Figure 3.2 illustrates this example by showing the radius of damage of a nuclear weapon impacting at the same point on the ground in relationship to one unit in circular configuration and the same unit in linear formation. The unit in circular formation may be 40% destroyed while the second may sustain about 25% destruction.

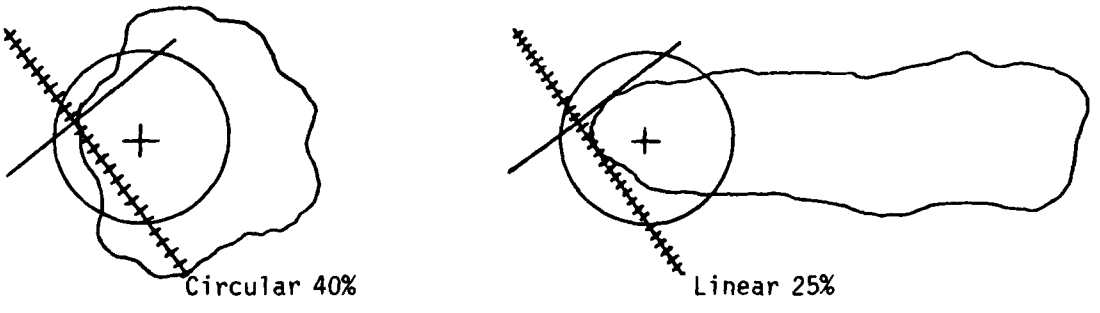


Figure 3.2. Unit configuration.

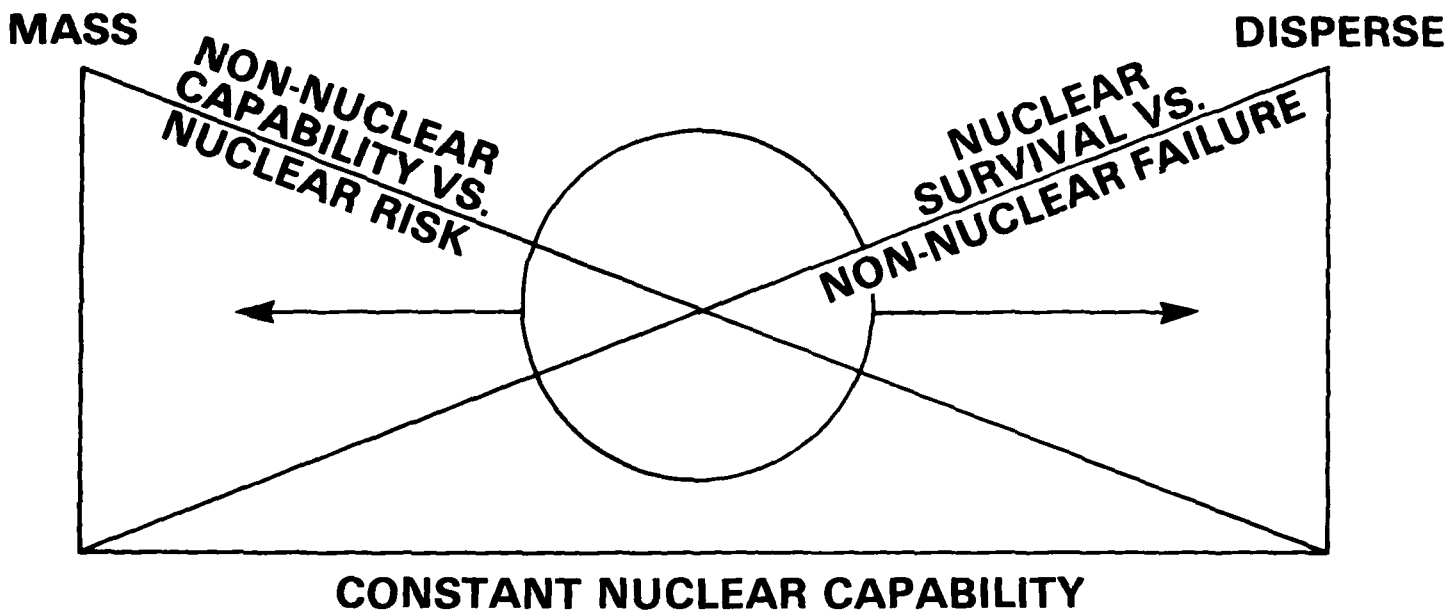


Figure 3.1. Dilemma of integrated battlefield: mass vs. dispersion.

3.2.1.3 Cover. Exposed personnel, equipment, and resources are far more vulnerable to the effects of nuclear weapons than those afforded some degree of cover. Maximum use of natural terrain features such as defiles, rock formations, caves, etc.; and man made features such as abandoned railroad tunnels, wine cellars, bunkers and individual foxholes will significantly increase the survivability of both units and logistics resources.

3.2.1.4 Accessibility. Prior to occupying a position in the nuclear environment, consideration should be given as to the accessibility of the position after a nuclear attack. If tree blow-down and other obstacles likely to be created by a nuclear attack would occur on access, egress, and supply routes, the position should be avoided if possible.

3.2.1.5 Monitoring Capability. Even though units successfully survived the initial effects of a nuclear attack, they can suffer casualties by fallout or movement into an area of residual radiation unless they are capable of detecting this unseen danger. In this respect, units must be provided with adequate equipment and unit personnel must be proficient in its use.

3.2.1.6 Decontamination. Unit personnel, equipment and logistics resources operating in the nuclear environment will at one time or another become contaminated. Contamination will occur as a result of fallout or during movement through contaminated areas. Units must be provided with a decontamination capability or support, preferably both. Since the effect of radiation is cumulative, failure to decontaminate can result in radiation casualties which could have been avoided.

3.2.1.7 Protective Clothing. In some cases it may be impossible to decontaminate thoroughly equipment and resources or it may be too time-consuming. This problem can be overcome by providing protective clothing to selected individuals. Maintenance personnel for example can accomplish repairs on contaminated equipment if protective clothing is available to them and they are trained in its care and use.

3.2.1.8 Frequent Movement. The longer a unit or logistics installation remains in one place the more susceptible to attack it becomes, since the enemy is given time to locate, identify, and target the unit. This can be

overcome by moving units more frequently. This does not mean that units must actually move equipment or supplies each time. In the case of supply points, the need to up-load and move supplies can be avoided by issuing the stocks to draw down the old point while at the same time beginning to build up stock at the newly established point.

3.2.1.9 Redundancies. Redundancy in communications will be essential for adequate command and control. Redundancies of supply, maintenance, and transportation capabilities in the logistics system, particularly within the COSCOM,will provide the resiliency required to respond to surge requirements generated by the nuclear environment.

3.2.2 Impact of Countermeasures on Maneuver Operations.

At the corps and division levels the measures that must be taken to minimize results of nuclear effects translate into the following operational considerations:

- Since the size of closely assembled maneuver units should normally be limited to that of a company except when massing for offensive or defensive action, command and control and planning by the commander and staff must minimize the time in a massed stationary configuration and ensure that assets are focused at the times and locations required.
- Intelligence of Soviet/WP target acquisition capabilities and nuclear employment procedures must be considered to determine the normal time that a battalion-sized unit can remain massed before it must move, perform its mission, or disperse. That time must not exceed the time expected for the enemy to acquire and target the unit and execute a nuclear mission.
- Although important at every level and stage of operations, OPSEC, including the use of electronic countermeasures (ECM) and concealment, requires particular emphasis when units are massed. Control of operations under these conditions will require greater emphasis on SOP's, detailed planning, and coordination.

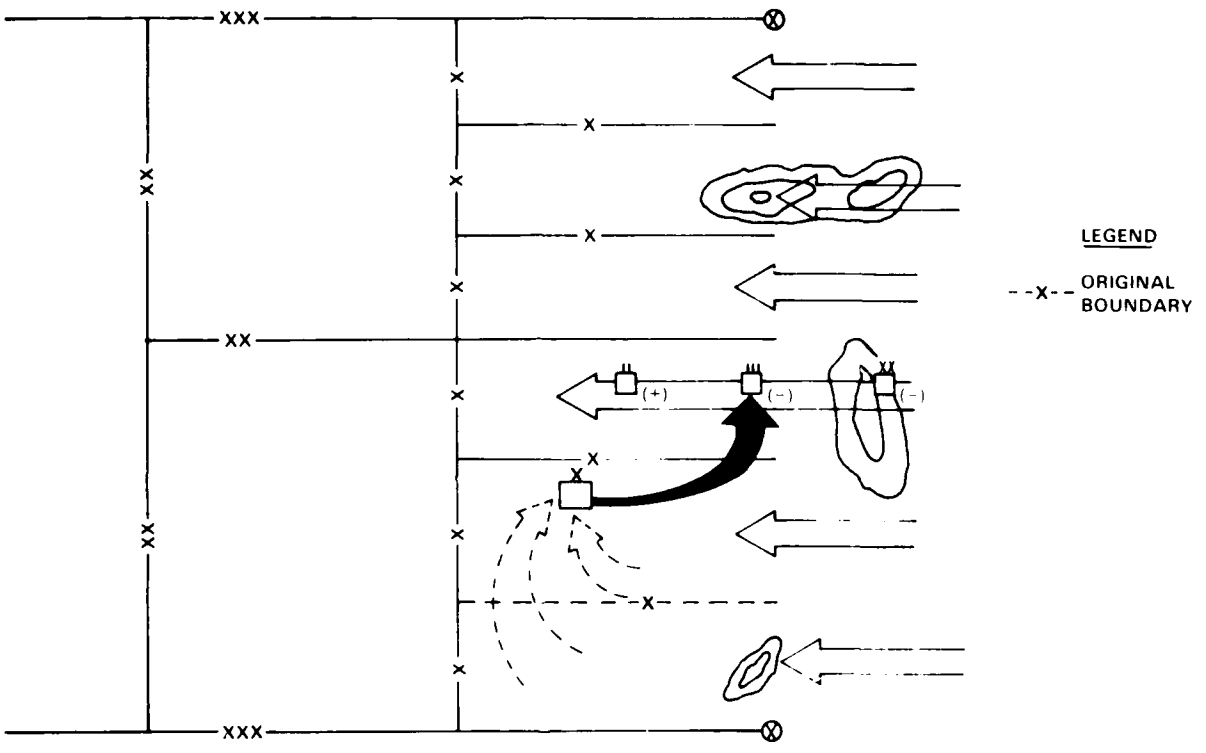
3.2.3 Conduct of the Defense on the Integrated Nuclear/Nonnuclear Battlefield.

Soviet/WP forces can be expected to attack along multiple axes with tank-heavy forces in echeloned formation with emphasis on surprise and mobility. The Soviets currently consider the meeting engagement as the offensive operation that in future war may be the most likely form of encounter, at all echelons, in either nuclear or nonnuclear war. They will launch a deliberate breakthrough operation only when necessary to continue their advance.

The task of defending NATO brigades and divisions will be to engage the Soviet/WP first echelon regiments and prevent or delay their advance, making maximum use of barriers to include ADM. Although they may be forced into retrograde movements to prevent becoming involved in battles of attrition, only limited space can be yielded if a forward defense is to be maintained. Consequently a successful defense is dependent upon concurrent counteroffensive actions against exposed flanks and weak points of first echelon forces while second echelon forces are being delayed, disrupted, and defeated by nuclear and/or nonnuclear battlefield interdiction.

Four generic situations stemming from the foregoing considerations are useful in illustrating integrated nuclear/nonnuclear operations and in setting forth attendant doctrinal requirements. Those situations, treated separately in the following subparagraphs, are: counter to Soviet nonuniform advance, counter to Soviet/WP uniform advance, defense against deliberate breakthrough operations, and NATO offensive operations.

3.2.3.1 Counter to Soviet Nonuniform Advance. Corps and division commanders in planning an active defense must seek opportunities to disrupt the Soviet/WP advance through offensive action. Opportunities for this will develop if the Soviet/WP columns advance in a nonuniform fashion so as to expose their flanks (Figure 3.3). Since a uniform attack requires considerable coordination and since a nonuniform attack can result from a number of factors, there is a strong probability that the latter situation will occur. In such case, a force of brigade or larger size can be massed with the mission of attacking the exposed flanks of a leading unit. Fire



CONDITIONS:

- SOVIET/WP FORCES ATTACK IN ECHELONED FORMATION ALONG MULTIPLE AXES
- ADVANCES WILL BE NON-UNIFORM DUE TO C^3 COMPLEXITIES AND VARYING DEGREES OF SUCCESS
- SOVIETS/WP ARE NOT FORCED TO CONDUCT DELIBERATE BREAKTHROUGH

US/NATO ACTIONS:

- BRIGADES DEFEND/DELAY IN SECTOR
- DIVISION COUNTER ATTACKS ON FLANK OF LEADING SOVIET/WP COLUMN

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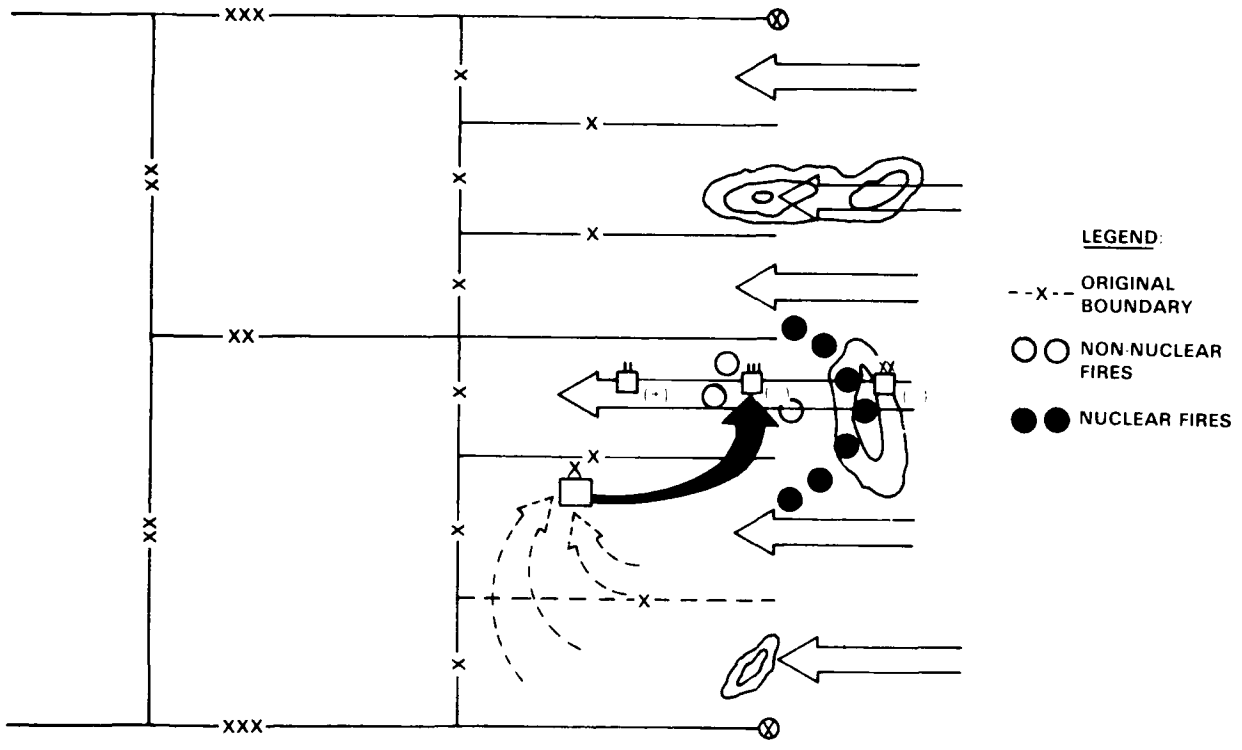
Figure 3.3. Counter to Soviet/WP non-uniform advance (maneuver).

support must be carefully planned to continue to contribute to destruction of the enemy force, disrupt his command and control and protect the flanks of the attacking NATO brigade(s). Both nuclear and nonnuclear options must be considered. Existing SEP should be adjusted as required to support the attack. Nuclear weapons should be allocated to this task if the situation has reached the point such that they are critical to the success of the counterattack and the counterattack is necessary to ensure success of a forward defense (Figure 3.4). Intelligence from all sources must be quickly gathered and processed so that Commanders can track Soviet/WP second echelon forces, anticipate the battle situation that will occur, and conduct the coordination required to make nuclear weapons available when and if needed. Logistical support must be carefully planned for such operations as will be discussed in Section 8.

3.2.3.2 Counter to Soviet/WP Uniform Advance. In the case of a uniform Soviet/WP advance along multiple axes, the opportunities for counterattack are not so clear cut and must be developed. Intelligence must be processed and used to determine the attacking columns against which counterattacks may be most successfully launched (Figure 3.5). In this case forces of brigade or larger size may be massed to counterattack along the axis of an advancing Soviet/WP column. The use of nuclear weapons against this column should be considered in order to achieve the necessary local advantage (Figure 3.6) for the counterattack. For maximum disruption, the NATO counterattack should continue into the flank of the adjacent Soviet/WP column. As in the case of the nonuniform Soviet/WP attack, the use of fire support should be planned, updating SEP for nuclear options as required. Such maneuver operations supported by nuclear and/or nonnuclear fires provide a means for disrupting what may otherwise be a successful Soviet/WP advance.

3.2.3.3 Defense Against Deliberate Breakthrough Operations. Soviet/WP doctrine calls for the conduct of a deliberate breakthrough operation in cases where their preferred meeting engagement tactics are not successful and success can not be reinforced to achieve their desired objectives. In this case, a massive high density combined arms operation heavily supported



CONDITIONS:

- SOVIET/WP FORCES ATTACK IN ECHELONED FORMATION ALONG MULTIPLE AXES
- ADVANCES WILL BE NON-UNIFORM DUE TO C^3 COMPLEXITIES AND VARYING DEGREES OF SUCCESS
- SOVIETS/WP ARE NOT FORCED TO CONDUCT DELIBERATE BREAKTHROUGH

US/NATO ACTIONS:

- BRIGADES DEFEND/DELAY IN SECTOR
- DIVISION COUNTER ATTACKS ON FLANKS OF LEADING SOVIET/WP COLUMN WITH NUCLEAR AND/OR NON-NUCLEAR FIRE SUPPORT TO PROTECT OWN FLANKS AND REDUCE SOVIET FIRE SUPPORT/ REINFORCEMENT CAPABILITIES.
- CONCURRENTLY NUCLEAR AND/OR NON NUCLEAR INTERDICTION FIRES DELAY, DISRUPT OR DESTROY SECOND ECHELON FORCES (DIVISIONS AND ARMIES) BEFORE THEY JOIN THE CENTRAL BATTLE DEPICTED HERE.

Figure 3.4. Counter to Soviet/WP non uniform advance (fire support).

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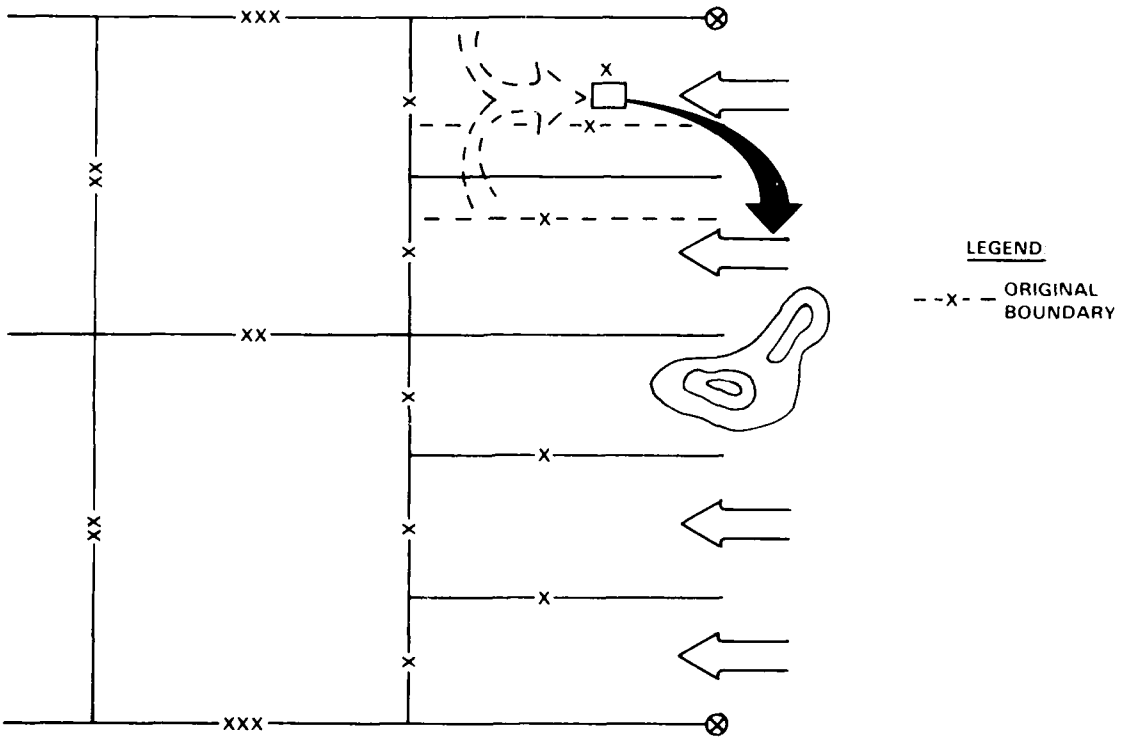

CONDITIONS:

- SOVIET/WP FORCES ATTACK IN ECHELONED FORMATION ALONG MULTIPLE AXES
- ADVANCES ARE GENERALLY UNIFORM WITHOUT EXPOSED FLANKS
- SOVIETS/WP ARE NOT FORCED TO CONDUCT DELIBERATE BREAKTHROUGH

US/NATO ACTIONS:

- BRIGADES DEFEND/DELAY IN SECTOR
- DIVISION COUNTER ATTACKS ALONG AXIS OF WEAKEST SOVIET/WP COLUMN AND INTO FLANK OF ADJACENT COLUMN

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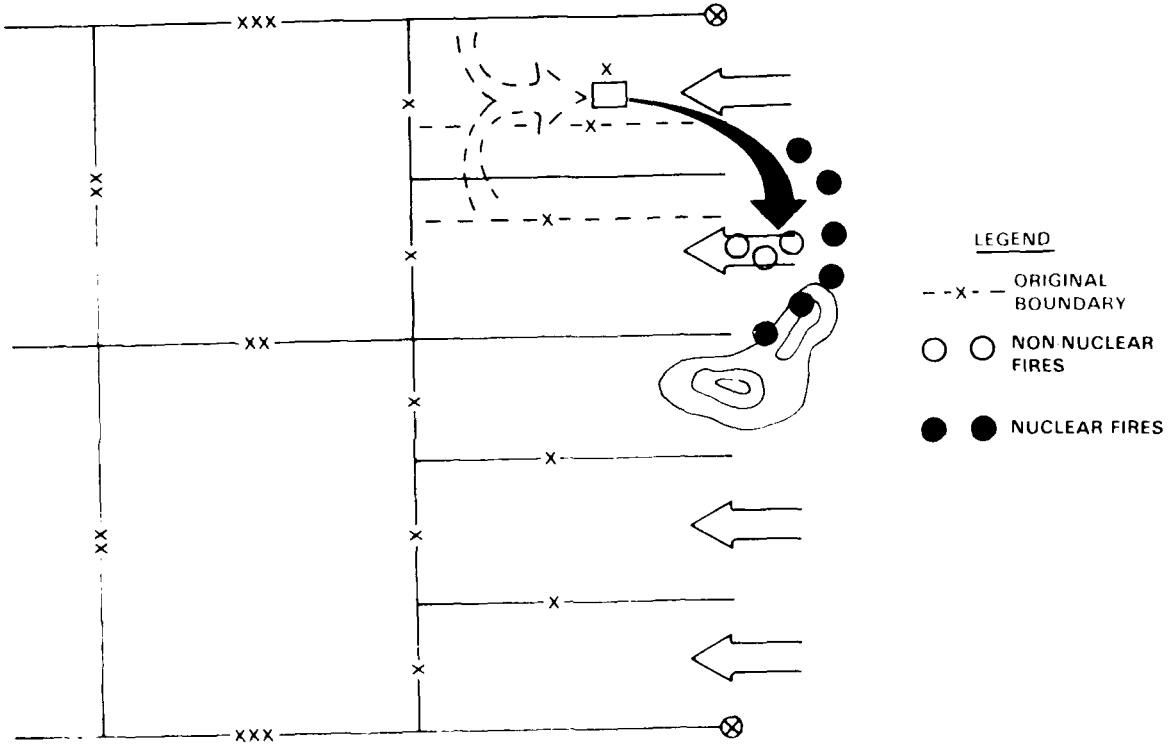
Figure 3.5. Counter to Soviet/WP advance (maneuver).



CONDITIONS:

- SOVIET/WP FORCES ATTACK IN ECHELONED FORMATION ALONG MULTIPLE AXES
- ADVANCES ARE GENERALLY UNIFORM WITHOUT EXPOSED FLANKS
- SOVIETS ARE NOT FORCED TO CONDUCT DELIBERATE BREAKTHROUGH

US/NATO ACTIONS:

- BRIGADES DEFEND/DELAY IN SECTOR
- DIVISION COUNTER-ATTACKS ALONG AXIS OF WEAKEST SOVIET/WP COLUMN WITH STRONG NUCLEAR AND/OR NON-NUCLEAR FIRE SUPPORT
- CONCURRENTLY NUCLEAR AND/OR NON-NUCLEAR INTERDICTION FIRES DELAY, DISRUPT OR DESTROY SECOND ECHELON FORCES (DIVISIONS AND ARMIES) BEFORE THEY JOIN THE CENTRAL BATTLE DEPICTED HERE.

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Figure 3.6. Counter to uniform Soviet/WP advance (fire support).

by artillery is launched (Figure 3.7). Such an operation presents a crucial threat to a successful forward defense. Even if available, the movement of adequate brigades for a direct defense into position in the necessary time-frame may not be possible. Counterattacks supported by integrated nuclear/nonnuclear fires and directed toward the shoulders of such a developing penetration can be a more effective utilization of available maneuver forces. The use of nuclear counterfires, especially during the period from 12 to 24 hours before the attack when Soviet Doctrine indicates supporting artillery should be in place, can reduce the massive Soviet/WP fire support capability. Other nuclear fires generating overwhelming combat power can block penetrating enemy forces and facilitate their destruction (Figure 3.8).

3.2.3.4 NATO Offensive Operations. In order to defend successfully NATO territory and attain a position which contributes to conflict termination on terms acceptable to NATO, the capability for the conduct of NATO offensive operations must exist. The ultimate objective of such operations should be, as a minimum, defensible terrain in the vicinity of the international border. Such offensive operations may require the use of nuclear weapons in order to achieve the necessary relative combat capability. Nuclear weapons can contribute to the concentration of overwhelming combat power, the suppression of enemy defensive fires, and the shock and destruction of the enemy required for a successful offense. As indicated in Figure 3.9 a typical corps offense would employ a weighted main attack to secure the corps main objective. Upon securing the main objective, units from the main attack could, as illustrated, assist the division making the secondary attack in securing its objective. Both attacks would plan for support by nuclear weapons with attacking forces passing through targeted areas (Figure 3.10).

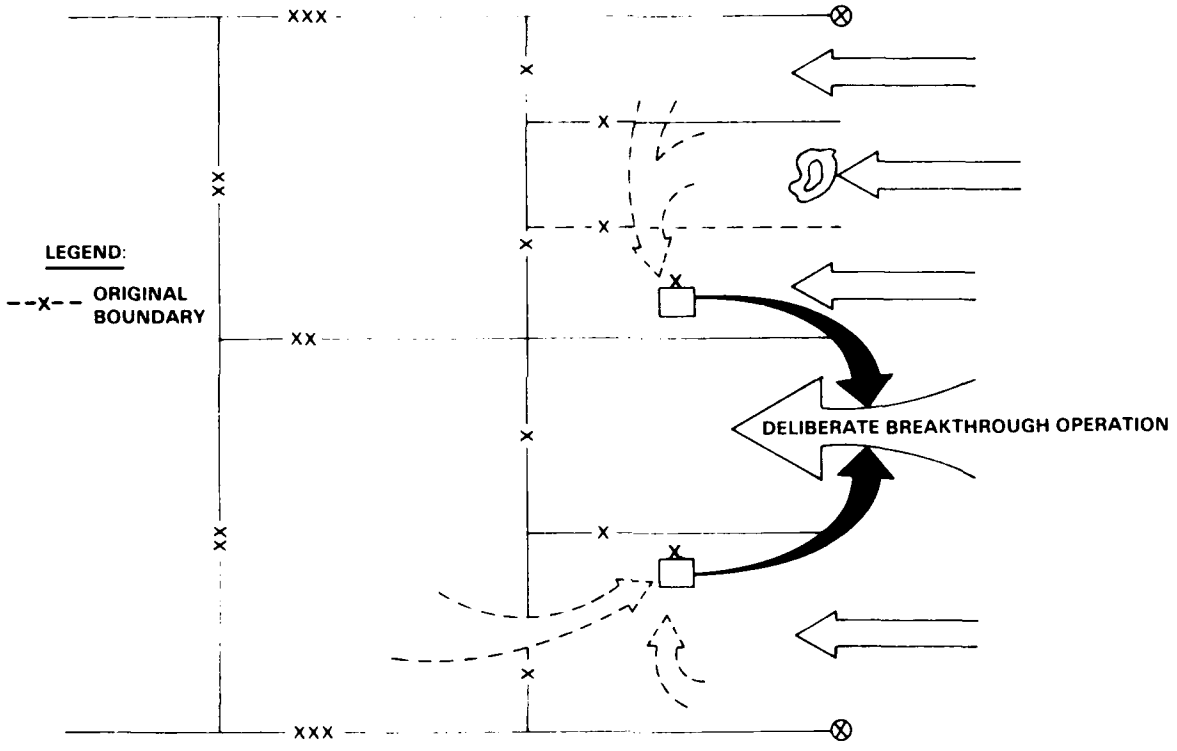
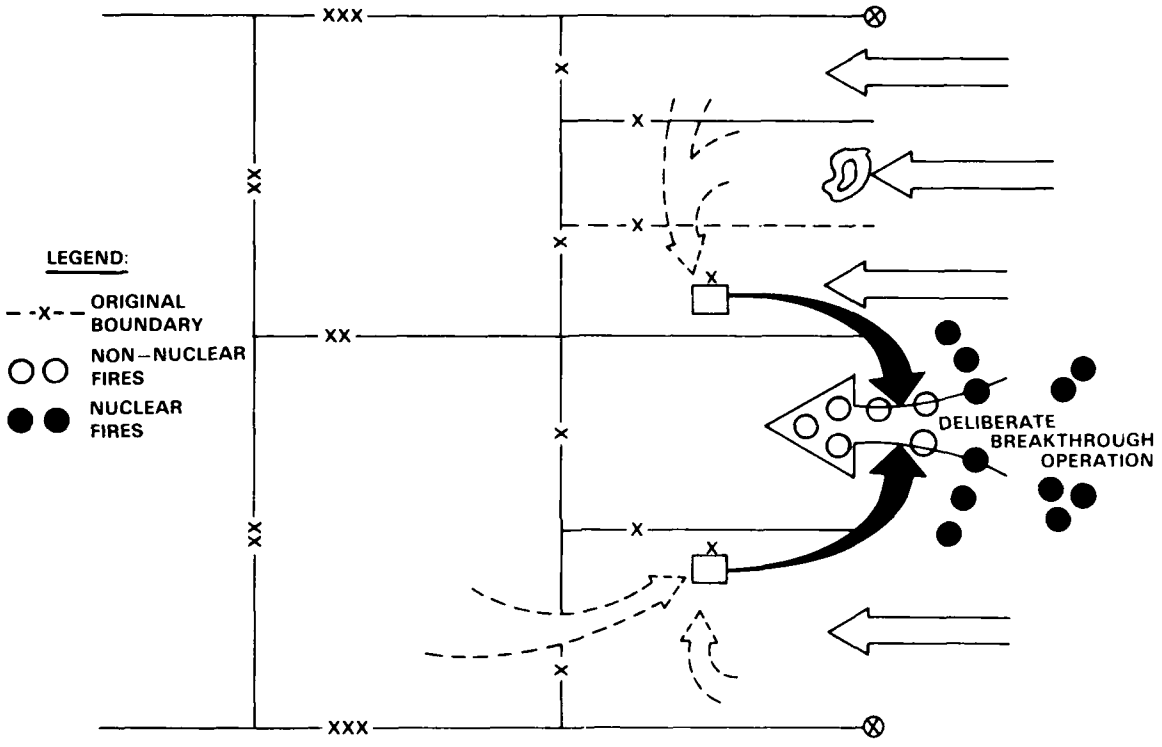


Figure 3.7. Counter to Soviet/WP deliberate breakthrough (maneuver).



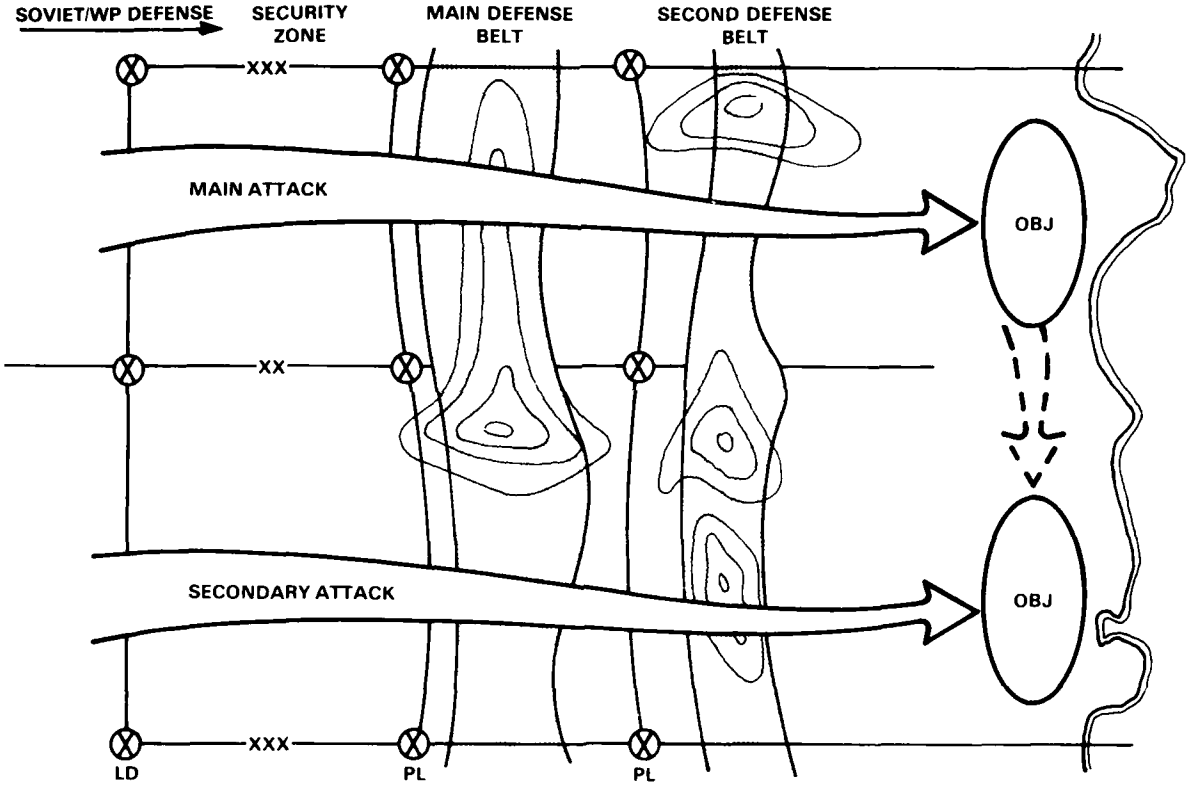
CONDITIONS:

- SOVIETS/WP MOUNT DELIBERATE BREAKTHROUGH OPERATION WHICH THREATENS CORPS

US/NATO ACTIONS:

- COUNTER ATTACK BOTH FLANKS OF PENETRATION WITH STRONG NUCLEAR AND/OR NON-NUCLEAR FIRE SUPPORT TO PROTECT OWN FLANKS AND REDUCE SOVIET/WP FIRE SUPPORT/REINFORCEMENT CAPABILITY
- CONCURRENTLY NUCLEAR AND/OR NON-NUCLEAR INTERDICTION FIRES DELAY, DISRUPT OR DESTROY SECOND ECHELON FORCES BEFORE THEY JOIN THE CENTRAL BATTLE DEPICTED HERE

Figure 3.8. Counter to Soviet/WP deliberate breakthrough (fire support).



CONDITIONS:

- SOVIET/WP ADVANCE DISRUPTED
- RESTORATION OF NATO TERRITORY NECESSARY FOR SATISFACTORY CONFLICT TERMINATION

US/NATO ACTIONS:

- CORPS ATTACK SUPPORTED BY NUCLEAR AND NON-NUCLEAR FIRES WITH MAIN AND SECONDRY ATTACKS
- UPON SECURING MAIN OBJECTIVE, SUPPORT PROVIDED TO SECONDARY ATTACK

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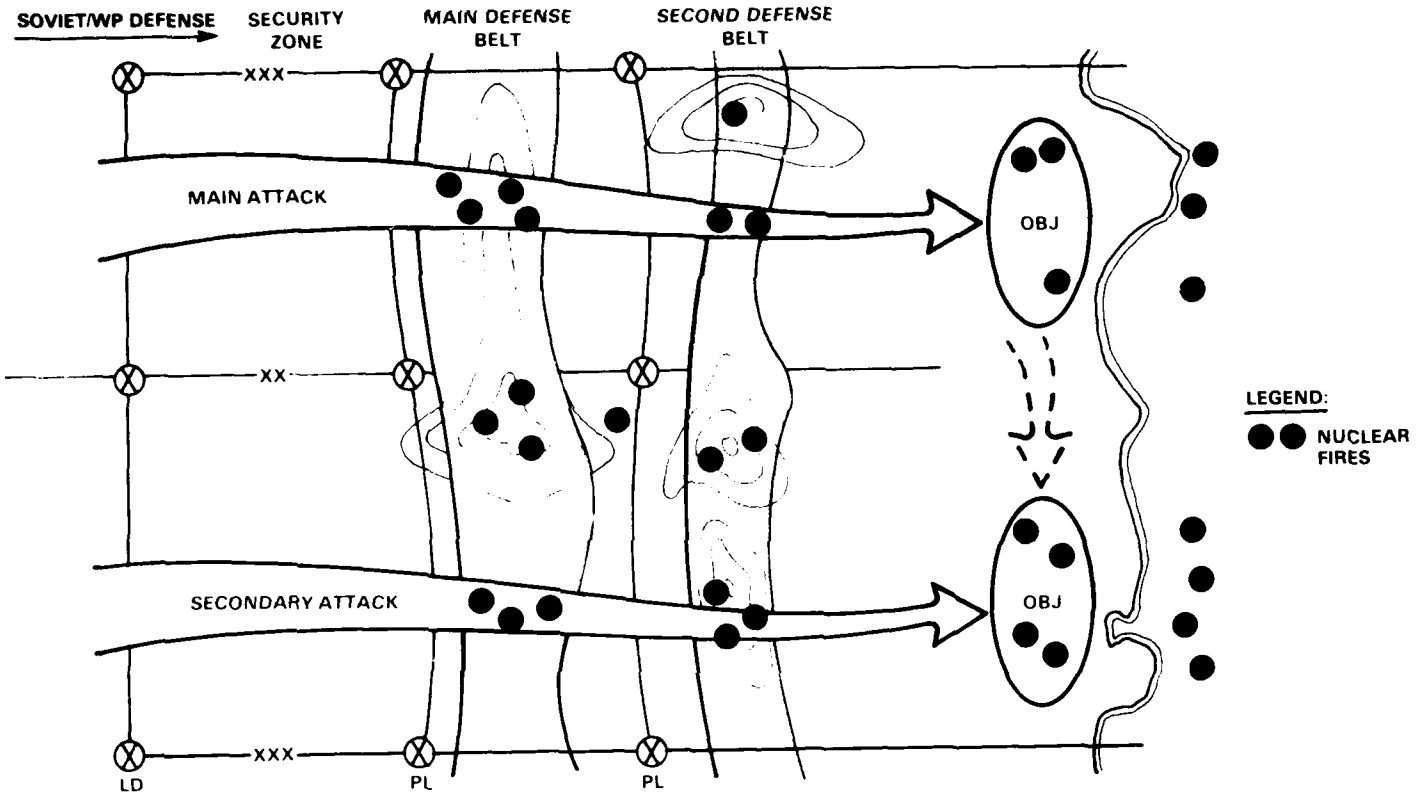
Figure 3.9. NATO offensive operation (maneuver).



CONDITIONS:

- SOVIET/WP ADVANCE DISRUPTED
- RESTORATION OF NATO TERRITORY NECESSARY FOR SATISFACTORY CONFLICT TERMINATION

US/NATO ACTIONS:

- CORPS ATTACK SUPPORTED BY NUCLEAR AND NON-NUCLEAR (NOT SHOWN) FIRES WITH MAIN AND SECONDARY ATTACKS
- UPON SECURING MAIN OBJECTIVE, SUPPORT PROVIDED TO SECONDARY ATTACK
- CONCURRENTLY NUCLEAR AND/OR NON-NUCLEAR INTERDICTION FIRES DELAY AND DISRUPT SOVIET/WP EFFORTS TO REINFORCE AND TO ESTABLISH ADDITIONAL DEFENSE BELTS.

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Figure 3.10. NATO offensive operation (fire support).

SECTION 4
THEATER CONSIDERATIONS AND INFLUENCES

4.1 MILITARY USEFULNESS.

To be effective, integrated nuclear/nonnuclear operations must be flexible enough to meet the needs occurring in a wide variety of possible scenarios, not least because NATO is forever relegated to a defensive posture prior to initiation of hostilities. This implies that a responsive and highly survivable C^3 must be maintained, and that some reserve capability always be retained. The forces involved must be survivable and their vulnerabilities clearly recognized and compensated. At the same time, the forces must be optimized for effective reaction by proper deployment in a forward, useful posture.

4.2 ALLOCATION, RELEASE, AND EMPLOYMENT.

SACEUR maintains categorized lists of targets which can be struck in accordance with several options available to him, ranging from a general nuclear response to a limited tactical response. Integrated operations can make use of these target lists, with emphasis on interchangeability and modularity so that operations do not become "captive" to these categories. Pre-planned targets in the WP can be struck pre-emptively or in retaliation.

In the execution or implementation phase of SACEUR war plans, several current restrictions apply. Some should be modified to support integrated nuclear/nonnuclear operations. For instance, current restrictions on nuclear artillery related to effective ranges of the systems might be extended. For integrated nuclear/nonnuclear operations, the greatest possible flexibility of employment will be needed, and operational restrictions currently in effect should be reviewed with an eye toward liberalizing or removing those restrictions.

The high degree of control and authorization needed for nuclear operations necessitates a highly survivable and effective system for keeping communication channels open from the political authorities to the theater level. Also mandated are systems and procedures for maintaining

continuous surveillance of the theater situation and theater-wide control of available nuclear-capable forces. More discussion on these points is contained in the section on air-land force operation.

SECTION 5
AIR-LAND FORCE OPERATIONS

5.1 PLANNING CONCEPTS.

5.1.1 General .

The interface between the Air Force and Army for integrated nuclear/nonnuclear warfare must be well defined and flexible across the spectrum of Service needs: close air support, reconnaissance, battlefield interdiction, airlift, and miscellaneous support functions.

The prime tenet of Air Force doctrine governing air operations is, "Centralized Control - Decentralized Execution." This tenet arises from the principle that air operations constitute such a significant part of the total combat effort that its assets should not be allocated and controlled piecemeal at low levels of command. On the contrary, the tasks of target selection and prioritization, allocation of sorties among the various missions of TACAIR, and the retention of a strong, reactive flexibility for using the air assets are decisions made at the highest levels of joint command. It is at these levels that the concepts for combined nuclear/nonnuclear operations must be aimed. It is also here that the implementation of policy set down by NATO must take place. But the decentralized execution of these decisions and policies must take place as far down as corps and division for ground forces, and group and wing for TACAIR forces.

The system for centralized control and decentralized execution for use of TACAIR in support of ground forces is specifically designed for nonnuclear ordnance. Features of that system and of the related Army fire planning system do not, however, provide essential interfaces for integrated nuclear/nonnuclear operations since the focal point for much of Army fire planning as well as execution is at corps level. Planning requirements such as deconfliction and prioritization are not adequately satisfied through current interfaces. Correcting this situation requires concerted efforts between the Army and the Air Force. In this regard, there are modifications in application of the Air Force system which are

steps toward the use of nuclear ordnance in support of battlefield operations. Some options for this application are presented in later sections.

5.1.2 System Development.

The development of new systems which will have the greatest impact on integrated nuclear/nonnuclear air operations in support of ground forces in the near-term, are AWACS (Airborne Warning and Control System), the RTIP (Real-Time Intelligence Processing) van and its associated systems, and the GLCM (Ground-Launched Cruise Missile). The latter system impacts the battlefield indirectly because it can free air assets which would otherwise be used to deliver nuclear ordnance against deep targets.

5.1.3 AWACS.

The tactical air control system has made use of the airborne command post quite extensively and effectively in the past. It has been used as an interim command post (CP) for the Air Force component commander until establishment of the AFCCP (Air Force Component Command Post), later as an airborne direct air support center, and for real-time management of interdiction and other types of strikes, as an extension of the AFCCP. However, AWACS represents at least an order of magnitude growth in capability over the previous airborne command post. Its capabilities will include:

- Total force management of the air operations in theater to include close air support, interdiction, air superiority, air defense, airlift, reconnaissance, and special missions.
- Ground and air situation monitoring.
- Command and control in real time of contingency operations involving the application of air assets.
- Air Defense warning and direction of the air defense battle.
- Communications with all levels of command, including the National Command Authority.
- Support to Air and Ground Component Commanders for real-time command and control functions from the airborne platform.

The technical systems on board the AWACS aircraft which support the above functions are described in other sources.

AWACS offers, in the context of combined arms employment, a unique capability for real-time Air Force-Army interface in connection with both centralized control and decentralized execution.

5.1.4 RTIP.

The generic real-time intelligence processing (RTIP) and dissemination systems can provide information from national assets for the direct use of subordinate tactical commanders. The resultant information can be available to both the ground commander and AWACS, and coupled with armed reconnaissance, can critically degrade deployed enemy forces at all echelons through the use of either nonnuclear or nuclear ordnance.

5.1.5 Escalatory Options and Control Mechanism.

The Air Force role, in conjunction with ground forces and their long-range nuclear weapons, will by necessity vary considerably according to the ways in which nuclear operations are introduced in theater. In order to remain within strictly controlled escalation boundaries and perceptions, certain implications of employment options must be anticipated.

When the decision is made to employ nuclear weapons, regardless of the level of intensity, TACAIR must retain the capability to respond immediately with the Priority Strike Plan. This is necessary because of the possibility that the Soviet/WP may perform an escalated response if initiation occurs by NATO at a low level, or the possibility that the WP will respond in kind if initiation occurs at a high level. A sufficient number of aircraft must be placed on quick reaction alert (QRA) to attack and significantly degrade the Soviet/WP nuclear capability whenever nuclear operations are initiated.

5.1.6 Bounds and Constraints.

The real-time C^2 of nuclear (and nonnuclear) forces must operate under political control of the US and NATO allies. This is facilitated by AWACS and survivable C^3 through AFSATCOM. Only by remaining cognizant of the total force situation can the political control of nuclear employment be effective. Such cognizance is only possible at joint command or higher through the use of theater surveillance systems. The data from all the

surveillance systems should be filtered, processed and disseminated in near real-time to the political authorities. The data and/or political decisions based on that data should be continuously available to the joint command and control mechanism.

5.1.7 Deep Interdiction.

Priorities for deep interdiction targets must be developed considering influence on the Central Battle as well as other factors. Consequently, these interdiction targets might not be as sensitive to weapon yield and to political constraints as battlefield targets. This implies that the use of TACAIR against deep interdiction targets can be partially supplanted by the use of SLBMs and B-52s, freeing TACAIR-delivered nuclear ordnance for use on the battlefield.

The use of strategic systems in this deep interdiction role would serve the interest in coupling of the European Allies; however, it also carries with it a potential perception by the WP of escalation which must receive careful consideration.

5.1.9 Weapon Allocation and Control.

Because numbers of weapons may continue to be somewhat limited, there may be some understandable reluctance to use Army nuclear weapons against what are essentially "Air Force" targets such as interdiction, and the use of Air Force nuclear weapons against Army-generated targets. This reluctance must be completely submerged by insuring that, in planning, no type of ordnance is considered dedicated to targets by source of generation. Only the constraints of yield, type, range, collateral damage, response time, accuracies, rates of delivery, and other factors influencing probabilities of kill and effect on the enemy should be considered.

5.1.10 Target Nomination and Prioritization.

Current Air Force procedures for nominating and prioritizing targets center mainly around how much TACAIR can be allocated to which missions. Artillery does not enter into the process of pre-planning, but is frequently used by FACs to cover targets which are vulnerable to artillery and which can be neutralized by artillery. Nuclear weapons cannot be

handled the same way. The target nomination and prioritization process must include the use of all nuclear-capable systems. Because the capability of TACAIR and GLCMs extends beyond the limited range of nuclear artillery, every target which can feasibly be struck by the latter should ideally be scheduled for strike by the latter. If the battlefield area is so rich in pre-planned targets that TACAIR would be more effective in degrading enemy capability than artillery, then TACAIR should be used, whether the targets are in range of artillery or not. But if artillery can effectively neutralize all targets within its range in a given situation, then no TACAIR should be used in this area. This is in the pre-planning context only, since exigencies can cause change in the weapon allocation by centralized joint command both on the battlefield and deep in WP territory.

5.2 IMPLEMENTATION.

5.2.1 C^3 Options.

Compared to nonnuclear operations, combined nuclear and nonnuclear operations will be reliant upon more centralized control, therefore making survivable, reliable C^3 a necessity. The AFSATCOM and DSCS III systems must be relied upon, meaning that on-orbit spares, quick-reaction launch of satellites and back-up relay systems will be needed. It is by no means a foregone conclusion that such space systems will be attacked in theater conflict, for the same reasons that warning satellites will probably not be attacked. The reasons relate to the inadvisability of blinding and deafening the NCA of either the US or USSR in situations where it is critical that each side understands what is occurring, holding open the options for limiting or terminating the conflict. If satellite attacks do occur, however, the measures mentioned above will help insure survival of the C^3 functions. The US might also respond by attacking Soviet satellites, a possibility which the USSR cannot ignore.

Other requirements associated with centralized monitoring and control are communications capabilities between AWACS and all Service components and between the components. This will be especially important when all elements of the NATO TRIAD are being employed.

5.2.2 Target Generation.

All targets throughout the theater must be considered during the pre-planned allocation of weapon systems and also during execution. Since speed and reaction time of the weapon systems have compressed distances, and because of limited numbers of nuclear weapons, data processing of theater-wide targets will be necessary. Targets should be generated by surveillance systems and automatically inserted into the target data base in addition to the targets generated by Service components. Whichever of the several assignment and prioritization schemes available are actually chosen, ordering and categorization would occur most effectively with the aid of automated equipment. The anticipated target-rich environment would then be effectively accommodated. Manual processing will not meet the anticipated need.

5.3 EMPLOYMENT OPTIONS.

5.3.1 Pre-Planned Sorties.

The development of pre-planned options must be performed on a continuous basis both in peacetime and in active conflict. These options must be pre-briefed and approved by, and with the consent of, political authorities. Pre-planned sorties for TACAIR could be considered available for handoff to the joint CP aboard AWACS whenever pre-planned targets become nonproductive for strike or restrike. The sorties should therefore, whenever possible, be mated to selectable-yield weapons for greatest flexibility.

5.3.2 QRA Retargeting.

Those nuclear sorties put on alert for designated target lists should also be considered as available to the Joint CP whenever they are not executed against designated targets. Selectable-yield weapons would therefore be desirable for alert sorties. Quick change-out options for ordnance, to be exercised prior to takeoff, should be studied and evaluated. Changes between different yields of nuclear weapons, and between nuclear and nonnuclear packages should also be considered. Such options must likewise be pre-briefed to, and approved by, political authorities.

SECTION 6
AVOIDING TRANSITION MEASURES FOR NUCLEAR EMPLOYMENT

6.1 GENERAL.

A key element to the successful conduct of integrated nuclear/ nonnuclear operations is utilizing to the maximum extent possible the same target acquisition, intelligence processing, fire-planning, and mission execution procedures for nuclear and nonnuclear weapons employment. The avoidance of transition measures will not only increase the effectiveness of our own operations, but will also place added uncertainty into enemy planning and force him to be more conservative. If the transition can be totally masked, the enemy may be forced to deploy more widely from the beginning of the conflict, thereby losing the advantages of mass at the point of attack. The masking of our intent will also make it more difficult for an enemy to determine the need for nuclear preemption.

6.2 PROCEDURES WHICH MINIMIZE DIFFERENCES IN NUCLEAR AND NONNUCLEAR OPERATIONS.

Nuclear and nonnuclear fire-planning must be continual. The allocation of weapons must reflect expected use of weapons based on enemy operations and evaluation of the terrain. However, sufficient latitude must be provided to allow use for battlefield options as well as for theater options. The actual positioning of weapons with delivery units must occur in the initial deployment to avoid any indication of impending use that could be detected by weapon positioning. However, when repositioning is necessary, the movement involved must not present a distinctive signature. As the fire-plan is modified by changes in intelligence and the movement of maneuver elements, the assignment of specific targets must be adjusted. These adjustments will be necessary not only among Army delivery units but between services as well.

It is expected that the commander's guidance on fire-planning will be changed as the battle progresses and the plan must be adjusted accordingly. Care must be taken in the adjustment of targets to insure

that the weapons needed are contained in the pre-planned package. Whenever possible, the available weapons should be tailored to the targets to avoid the need to correct or change an existing package.

Handling of nuclear weapon request and release message traffic must not be distinctive from handling other fire-planning messages. The use of selective employment plans (SEP) and the frequent updating of targets within the SEP will shorten the time needed for evaluation and consolidation/approval. Use of SEP also facilitates the use of "top-down" implementation which further reduces processing/decision time. The procedures used to maintain security during nuclear request/release should also be applied to information regarding PAL.

SECTION 7
FIRE-PLANNING

7.1 GENERAL.

In recognition of the deterrent and war-fighting elements of the NATO military force mission, fire-planning can contribute substantially to both. Fire-planning in this discussion pertains to both nuclear and non-nuclear fires. The deterrent function is served by the clear signal conveyed by the activity taking place at all command and staff levels in peacetime. This planning activity can selectively follow Soviet/WP formations during their training exercises using the actual Order of Battle and appropriate NATO fire support units. Targeting should be realistic and apply fire support means best suited to the targets in the plan. For example, high payoff targets in WP field artillery are countermortar/counterbattery radars and radar DF equipment, division rocket troops and artillery, multiple rocket launchers, guns and FROGs, gun battalion and battery CPs and fire direction centers. To be most effective even in peacetime, fire-planning should be continuous and include C^3I, target acquisition, and delivery units in addition to senior NATO fire-planning staffs.

If it is assumed that the tank is the most dangerous component of the WP conventional formations and further, that the most cost effective way of dealing with the tank is with NATO's direct fire antitank systems, it follows that conventional (and to a great extent, nuclear) fire support means would be best employed against those softer target elements accompanying the tank. Soviet/WP doctrine fully embodies the combined arms approach to war-fighting and stripping the tank of its support has been shown to be effective in disrupting and even defeating armored formations. An ideal situation for NATO's concentration of anti-tank systems would be the arrival of Soviet/WP tanks without their infantry, artillery and radio electronic combat support.

7.2 CONTINUOUS TARGETING

The fire-planning required to support integrated nuclear/nonnuclear operations must be continuous, beginning with the planning and coordination of SEP before the conflict. SEP should be developed for battlefield interdiction as well as for use as appropriate in the Central Battle. Although individual maneuver units and other mobile targets cannot be pre-located, likely employment areas can be identified based on thorough terrain analysis and assessment of probable enemy and own courses of action. The use of these option area DGZs will greatly facilitate SEP development. SEP must be continuously updated based on target acquisition and all-source intelligence, and integrated with operations plans.

The continuous targeting of second echelon divisions can be achieved through activities in each of the following general subject areas.

- Analysis of the threat and related acquisition and strike assets.
- Analysis of information available.
- Analysis of activity levels under various conditions in the zones of interest to fire planners at various levels of command.
- Formulation of a planning capability and plans (SEP) for targeting the second echelon divisions.
- Use of information and pre-analysis of potential targets to provide rapidly strike options for command decision.

To provide the capability for continuous targeting, second echelon units should be acquired and tracked prior to the outbreak of hostilities and before they cross the political boundary. To facilitate the execution of responsibilities in this regard, zones may be designated according to depth from the border. In designating these zones, some overlap of responsibility between corps and army group headquarters, as well as between army group and the theater headquarters, should exist. This will facilitate coordination and transition from the broader coverage requirements of higher headquarters to the more localized requirements of corps as enemy forces reach the area where less time is available to acquire and strike them prior to commitment in the Central Battle.

The activity levels associated with various operations in the different zones must be examined to recognize changes in the status of second echelon forces. Units moving forward from home stations to eventual commitment will engage in types of activities such as road movement, entering of assembly areas, residence in assembly areas and the exiting of assembly areas. The latter three activities are of particular interest in that the force, for a relatively predictable time, becomes a fixed target.

Successful fire-planning will require not only a continuation of current targeting initiatives, but also the enrichment of these initiatives through an expansion of pre-hostilities target analysis and planning leading to pre-planned sensor deployment plans and strike options. The concept contends that the performance, in peacetime, of a broadened target analysis and planning function by targeting staffs with assigned zones of responsibility, can lead to significant improvement in strike and sensor deployment options. Essential is development of a data base of the type operations that second echelon divisions would implement and how these would be conducted in the operational environment of that staff's zone. This requires not only a thorough understanding of Pact doctrine and training, but detailed terrain analysis coupled with an appreciation of the applicability of appropriate sensor data and other intelligence to identificaiton of the operation in progress.

SECTION 8
LOGISTICS SUPPORT CONCEPT

8.1 PURPOSE.

To provide a conceptual approach to insuring timely logistics support and logistics system sustainability during integrated nuclear/ nonnuclear operations conducted in the NATO environment. The concept is intended to provide a basis for incorporating theater nuclear considerations into all aspects of logistics doctrine, planning, and support of offensive and defensive operations.

8.2 SCOPE.

The conceptual approach will be oriented primarily towards operations at corps level and below, using doctrinal and selected emerging logistics organization as the point of departure. In this respect the organization of the COSCOM will incorporate Restructured General Support (RGS) maintenance units and Missile System Support Structure Study (MS^3). The DISCOM will incorporate the ammunition transfer point (ATP) and the brigade support battalion concepts. Since the primary purpose of the logistics system is to meet the demands of combat units during the conduct of combat operations, this section will address the logistics support problems at battalion level and work back through the logistics systems at brigade, division, and corps level.

8.3 LOGISTICS CONSIDERATIONS IN THE NUCLEAR ENVIRONMENT.

The logistics concept for operation in a nuclear environment is based upon three prime considerations. First, the effects of nuclear weapons must be considered in the development of countermeasures. Second, the countermeasures necessary to insure the survivability of both the logistics system and the combat units it supports must be considered. Last, countermeasures taken by both the logistics units and combat units must be taken into account with respect to the collective impacts of these measures on the logistics support problem.

8.3.1 Impacts of Countermeasures.

Nuclear effects and the countermeasures which must be taken by combat and combat service support units have already been discussed. While these countermeasures increase the survivability of units and logistics resources, many also increase the problem of logistics support.

8.3.1.1 Dispersal. As units and logistics resources are dispersed, both the problems of transportation and security are increased. As distances between units and logistics supply and maintenance points are increased, turnaround times are increased. More trips have to be made to maintain the same level of supply in the combat units and forward supply points. Maintenance productivity will also be decreased since more time is spent traveling from one damaged item to another or in evacuating the item over greater distances for repair. More personnel will also be required to man perimeters. When the perimeter of one unit can be connected with the perimeter of others, manpower requirements are reduced. Units, when dispersed, have to man their own perimeters or be augmented by security forces.

8.3.1.2 Unit Area Configuration. As units occupy linear positions versus circular positions, the size of their perimeter increases. Additionally. in the case of logistics areas such as the forward support areas in the brigades, unit supply vehicles may have to make several stops to obtain the commodities they need, where in the past central issue points might have been possible.

8.3.1.3 Cover. Combat units, particularly personnel, will have to spend additional time digging foxholes and preparing other field fortifications. Logistics installations and supply points will require additional engineer support when natural cover is not available.

8.3.1.4 Accessibility. Engineer support will be required to clear main supply routes (MSRs) of obstacles created by the employment of nuclear weapons. Individual units may also require engineer support to extricate them from areas isolated by obstacles created by tree blow-down, etc.

8.3.1.5 Monitoring Capability. Both combat and logistics support units will require monitoring equipment and personnel trained to use it. This

may mean the addition of monitoring personnel to TOEs if prolonged operations in the nuclear environment are envisioned.

8.3.1.6 Decontamination. All units should be capable of limited decontamination of equipment and personnel. Provisions to augment individual unit capabilities must be closely examined, i.e., the need for special decontamination units at all echelons must be determined.

8.3.1.7 Protective Clothing. Authorization and stockage levels of protective clothing need to be closely examined. Additionally, training in the use of protective clothing, to include periods of operation where personnel are required to perform assigned tasks while wearing the clothing is necessary. This is particularly important in the area of maintenance, where protective clothing will in many cases be necessary; however, the extent to which the wear of protective clothing will degrade maintenance productivity is unknown.

8.3.1.8 Frequent Movement. Frequent movement may preclude building large stockpiles and may require that time consuming maintenance tasks previously performed in forward areas are not possible. Both of these situations may require increased transportation in forward areas to more supplies and for the evacuation of end items for maintenance. The latter may necessitate changes to maintenance allocation charts and modification of organizational, direct and general support maintenance organizations and missions.

8.4 LOGISTICS OPERATIONAL CONCEPT.

8.4.1 General.

The total logistics system, from unit level through echelons above corps, must be capable of surviving nuclear attacks and continuing to provide timely support over increased distances while dealing with obstacles and contamination. The logistics system must possess the resiliency necessary to permit meeting surge requirements generated by mass casualties and damage, or the need to mass logistics resources quickly to support both offensive and defensive operations. Logistics personnel at all levels must be highly trained in the most efficient use of transportation resources, site selection and preparation, construction of cover, monitoring, decontamination, coordination of obstacle clearance, and operating in a contaminated environment. Supply managers must develop procedures for drawing

down stocks at one supply point and building stock levels up at another while at the same time providing a continuous flow of supplies forward to the combat units. Maintenance managers must coordinate maintenance efforts and work loads at each level and integrate maintenance efforts with the replacement of end items to insure that the combat capabilities of units are maximized to the extent possible at all times.

8.4.2 Combat Battalion Level.

The logistics capabilities within each battalion constitutes the first link in the logistics chain. Generally, the logistics capabilities authorized each battalion should be sufficient to sustain the battalion during the performance of its combat mission until resupply and other support can be made available to the unit.

8.4.2.1 Supply and Transport. Each battalion requires levels of stock sufficient to sustain it until resupply can be accomplished. Each battalion also requires sufficient transport to carry the unit supplies and to accomplish resupply from forward distribution points. In the nuclear environment the levels of stock and transport authorized each battalion should take into account the increased need for field fortification supplies, decontamination supplies, increased distances attributable to dispersion of combat and logistics units, and periods of temporary isolation that will occur until MSRs can be cleared of obstacles. Supply point distribution will remain the norm with classes #I, II, III, & IV drawn from forward supply points dispersed in the brigade support area. Class V high usage, heavy tonnage items will be drawn from the Ammunition Transfer Point in the brigade support area and other Class V items drawn from the Ammunition Supply Point near the division rear. Class IX will be drawn from the Forward Support Maintenance Company.

8.4.2.2 Maintenance. Maintenance personnel require the level of repair parts and mobility necessary to repair as far forward as possible and to recover damaged end items as quickly as possible. They will also require the training and protective clothing necessary to enable them to accomplish maintenance tasks on contaminated items of equipment. Communications requirements must take into account the increased distance associated with dispersion.

8.4.2.3 Monitoring and Decontamination. Unit personnel require adequate training, equipment and supplies to permit detection of contamination and decontamination of personnel and essential equipment. To reduce the dosage of radiation poisoning of foodstuffs and the decontamination problem, the most easily decontaminated rations (probably C or MRE) will be issued during periods of danger from nuclear attack and fallout.

8.4.3 Brigade Support Area.

The principal logistics unit in the brigade support area is the Brigade Support Battalion.

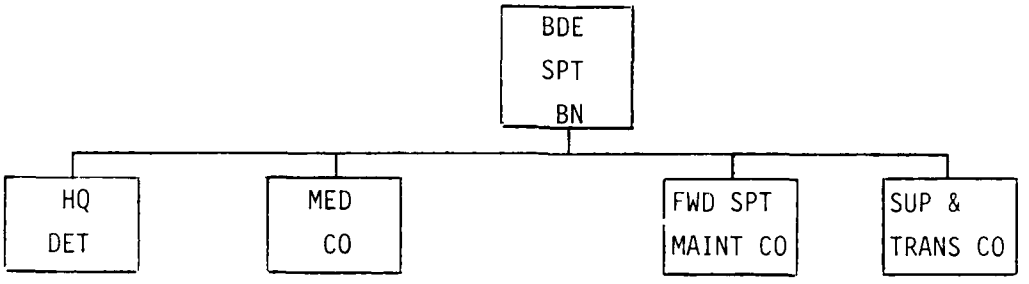

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Figure 8.1. Brigade support battalion.

8.4.3.1 Supply and Transport. The Supply and Transportation Company establishes forward supply points for Class I, II, III, IV, and the ATP for Class V high usage, heavy tonnage items. These points are dispersed and occupy positions in such a manner as to increase survivability, but also in such a manner as to insure timely support to combat elements. In this respect, dispersal and movement of more vulnerable classes of supply (Class III bulk and V) is accomplished by having two forward distribution points in operation; one being drawn down while the second is being established, each supporting the combat units nearest to it. Class I (C or MRE) could also be issued with the Class V. Class II & V could be issued from a central point, periodically moving to avoid targeting. The survivability of the stocks could be further increased by using engineer support to construct hasty field fortification and protective cover when natural cover is not available. Class IX support would be provided by the Forward Support Maintenance Company.

The transportation assets of the Supply and Transportation Company augment the transportation node between the Division main and the Brigade support area (Classes I, II, IV & IX) and can also be used to augment using units or mass logistics resources when they are needed. The transportation burden attributable to dispersion of units can be partially offset by meeting user unit resupply vehicles at a designated point on the MSR and either trading trucks (full or empty) or transferring loads. Class V will normally continue to be supplied to the ATP by Corps transportation. Critical supplies (CL I, III & V) can also be moved either to the forward supply points or near the combat units by helicopter when the situation dictates.

Close coordination between the support battalion and engineer units is necessary to insure that MSRs are cleared of obstacles created by conventional and nuclear attacks.

8.4.3.2 Maintenance. The Forward Support Maintenance Company will provide direct support (DS) forward by deploying forward support maintenance teams, and will provide DS maintenance support at the company location. Maintenance tasks that cannot be accomplished between moves will be deferred to the division main. Maintenance personnel will be trained and equipped to perform maintenance tasks on contaminated equipment.

8.4.3.3 Monitoring and Decontamination. The elements of the Brigade Support Battalion will require trained personnel and equipment necessary to accomplish monitoring decontamination of personnel and essential equipment. Large-scale decontamination will require support from decontamination units.

8.4.3.4 Security. Dispersion of units will increase the rear area security problem. Logistics units, when possible, should be provided augmentation by combat elements in reserve. Logistic unit TOEs should also be reviewed to determine what weapons systems can be added to logistics units at minimum cost in personnel.

8.4.3.5 Training. All logistics personnel will be highly trained and proficient in site selection, dispersal techniques, field fortification, monitoring, decontamination, and performance of tasks in a contaminated

environment. This will require extensive revision of present basic and advanced logistics training courses. Training should be oriented toward minimum classroom and maximum "hands on". Unit operation during peacetime should also include periods when operations are performed while full protective clothing is worn.

8.4.4 Division Support Area .

The principal logistics organization in the Division Support Area is the Division Support Command (DISCOM). The DISCOM performs all supply and maintenance functions except for Class V, (ASPs and ATPs supplied by the COSCOM), COMSEC (Div SIG BN & Corps), Aircraft Maintenance (performed by the Division Aviation Unit) and map supplies.

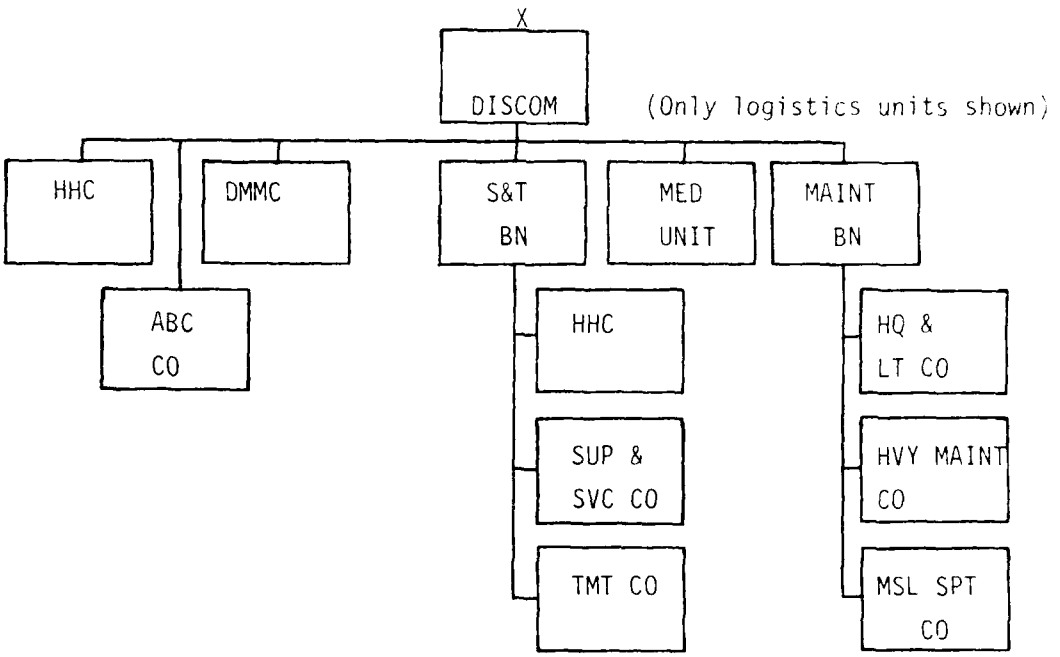


Figure 8.2. DISCOM.

Operating in the nuclear environment poses basically the same problems for the DISCOM as for the Brigade Support Battalions, except on a larger scale.

8.4.4.1 Supply and Transport. The Supply and Service (S&S) Company and Transportation (S&I) Battalion establishes the main supply points in the division support area for Classes I, II & IV, III and for Class VII (major end items). These points and the supplies within each point are dispersed to insure survivability. The technique of dispersal and movement of supply points used in the brigade support area is also applicable to the division support area, e.g., draw one point down while the second or third is being established. Since the quantities of stock are larger but further removed from the main battle area, survivability can be increased and the necessity for frequent movements decreased by more extensive use of engineer support to provide cover. Particular attention should be devoted to hardening the Division Material Management Center.

The transportation assets of the Transportation Motor Transport (TMT) Company has primary responsibility for the transportation node between the division main supply points and the forward supply points in the brigade support area. These assets can also be called upon to augment the Brigade Support Battalion or to assist the COSCOM transportation units by moving supplies from the COSCOM to the division supply points. Normally the TMT company will move Classes I, II & IV, and III forward, but during surge periods can also assist in the forward movement of Class V. The TMT can also be augmented by COSCOM transportation resources, to include helicopter when necessary.

Class coordination between the S&T Battalion and engineer units is necessary to insure that MSRs are cleared of obstacles created by conventional and nuclear attacks.

8.4.4.2 Maintenance. The Maintenance Battalion performs DS supply and maintenance support to the units in the division support area as well as to the units of the brigade. DS maintenance support in the brigade areas is performed in coordination with the forward support maintenance companies of each Brigade Support Battalion except for missile maintenance which is accomplished by teams that are deployed to battalion level. Maintenance personnel will be trained and equipped to perform maintenance tasks on contaminated equipment.

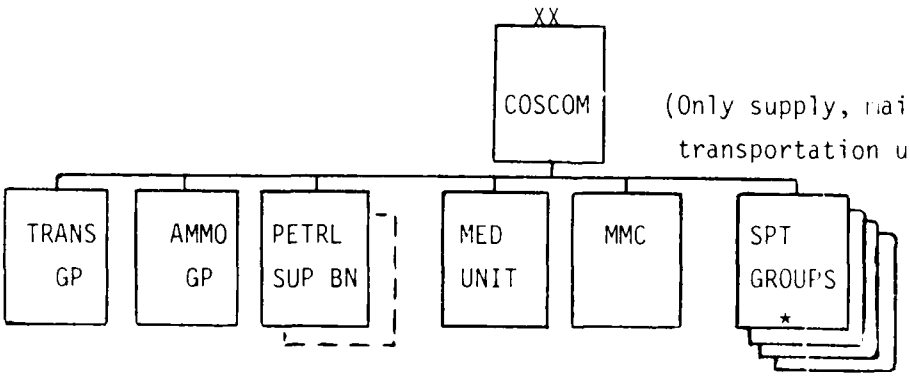
8.4.4.3 Monitoring and Decontamination. The elements of the DISCOM will require trained personnel and equipment necessary to accomplish monitoring and decontamination of personnel and essential equipment. Assistance from decontamination units and engineer units will be required to accomplish large scale decontamination of supplies, equipment, and unit areas.

8.4.4.4 Security. Dispersion of units will increase the rear area security problem. Logistics units, when possible, should be provided augmentation by combat elements in reserve. Logistic unit TOEs should also be reviewed to determine what weapons systems can be added to logistic units at minimum cost in personnel.

8.4.4.5 Training. All logistics personnel will be highly trained and proficient in site selection, dispersal techniques, field fortification, monitoring, decontamination, and performance of tasks in a contaminated environment. This will require extensive revision of present basic and advanced logistics training courses. Training should be oriented toward minimum classroom and maximum "hands on". Unit operation during peacetime should also include periods where operations are performed while full protective clothing is worn.

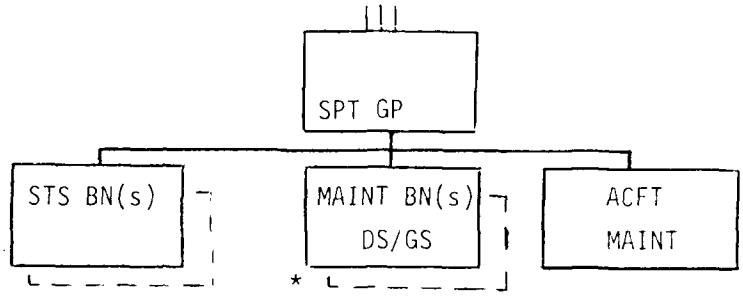
8.4.5 Corps Support Command (COSCOM).

The principal logistics organization immediately behind the Divisions in the COSCOM, and within the COSCOM, the Transportation Group, Ammunition Group, Petroleum Battalion and Support Groups.



4212:79W Figure 8.3. COSCOM.

The maintenance units and supply units (CLASSES I, II, IV, VI, VII and IX) are found within the Support Groups.



* To be replaced by Restructured General Support (RGS) units.

4212 79W Figure 8.4. COSCOM support group.

8.4.5.1 Supply:

- Supply Management. The COSCOM Materiel Management Center (MMC) is the principal supply manager in the COSCOM. To insure survivability in the nuclear environment, engineer support should be used to harden the MMC to the extent that time will permit. Additionally, redundancies of MMC data should be generated and maintained at alternate sites to insure continuous supply management during periods when the COSCOM MMC is required to move or is put out of action.
- Dispersal of Stocks. The dispersal of stocks in the COSCOM area is a significantly greater problem than in the Division due to the greater quantities of stocks. Extensive use of engineer support to harden storage sites will increase the survivability of stocks at each storage location. Since the COSCOM is a tailored organization, certain redundancies are built in, which also increases system survivability. Logistics plans within the COSCOM should provide for one supply unit to fill the void created by the loss of another. For example, one repair parts supply company should be prepared

to service the customers of another that has been lost due to nuclear attack.

8.4.5.2 Maintenance. Extensive engineer support should be used to harden COSCOM maintenance sites, with priority given to General Support maintenance units. This will increase their survivability and reduce production losses by decreasing the frequency of unit moves. Logistics plans within the COSCOM should provide for COMMZ maintenance support to temporarily fill voids in COSCOM maintenance capabilities experienced due to nuclear attacks. Maintenance personnel should be trained and equipped to accomplish maintenance tasks on contaminated equipment.

8.4.5.3 Transportation. In the nuclear environment, the transportation system should be extremely flexible and closely allied with engineer support. In this respect, truck transport offers the most flexibility in that it can be shifted quickly from one sector to another over various routes. Supplies can be quickly massed to support both offensive and defensive operations. The rapidity with which truck transport can be used to mass and disperse supplies over varied routes increases the survivability of the logistics system since nuclear targets would be fleeting in nature and not fixed to readily identifiable features such as a major rail network that would be required to support a major logistics effort. The use of integrated aerial resupply also increases the system flexibility.

8.4.5.4 Monitoring and Decontamination. All logistics units of the COSCOM will require trained personnel and equipment necessary to accomplish continuous monitoring and decontamination of personnel and essential equipment. Greater reliance on specialized decontamination units and engineer support will be required to accomplish large-scale decontamination of supplies, equipment, and unit areas.

8.4.5.5 Security. Dispersion of units and stocks will increase rear area security problems. Logistic units when possible should be provided augmentation by combat elements in reserve or standby security forces. Logistics TOEs should also be reviewed to determine what weapons systems can be added to logistics units at minimum cost in personnel.

8.4.5.6 Training. All logistics personnel will be highly trained and proficient in site selection, dispersal techniques, field fortification, monitoring, decontamination, and performance of tasks in a contaminated environment. This will require extensive revision of present basic and advanced logistics training courses. Training should be oriented toward minimum classroom and maximum "hands on". Unit operations during peacetime should also include periods where operations are performed while full protective clothing is worn.

8.5 NUCLEAR RESUPPLY.

As with conventional supplies, the first link in the nuclear system chain is the adequacy of nuclear stocks at user unit level. The prescribed nuclear load (PNL) of user units should be sufficient to sustain nuclear targeting requirements through any initial nuclear exchange. The user units can increase the survivability of their PNL in the nuclear environment through dispersion and maximum use of natural and man made cover in forward areas.

Resupply of nuclear weapons must be timely and responsive to special requirements. In this respect, the preferred mode of transport is by air. Ground transport is the secondary mode of transport.

Maintenance of nuclear weapons should be performed by mobile support teams to the extent possible. Rear area maintenance and storage should be performed in hardened sites. These sites should provide for dispersal of nuclear reserve stocks and can be constructed to a large extent during peacetime.

SECTION 9
RECONSTITUTION

9.1 GENERAL.

The achievement of ultimate success in integrated nuclear/nonnuclear operations will depend largely on the ability of NATO to reconstitute units after the severe losses of personnel and equipment that may be sustained in at least localized, if not widespread, areas. It is noteworthy that the ability of a combat unit to accomplish its mission in spite of losses can be enhanced by cross-training of personnel; positions critical to the accomplishment of the unit's mission must be identified and additional unit personnel cross-trained in the performance of those duties. When required, reconstitution involves a spectrum of activities and capabilities which can allow NATO forces to utilize effectively available resources and regain the required combat capability after being degraded in nuclear and/or nonnuclear operations.

9.2 REPORTING.

The first requirement of an effective reconstitution capability is a system for providing the commander and necessary support units with information on the status and needs of units after they have been degraded by enemy action. Detailed information on personnel losses by MOS, equipment, and repair parts needed must be reported. However, an immediate report that a company-sized unit has been degraded to the point where it can not accomplish its assigned mission will enable the higher commander to undertake regeneration actions in the light of available resources and operational priorities.

9.3 REGENERATION.

Losses in a unit's combat capability can be remedied by one or more courses of action:

9.3.1 Unit Replacement

This method should be used when a unit engaged in a critical mission is destroyed or neutralized. The unit would be replaced by an equivalent unit from corps, theater or CONUS resources, if available.

9.3.2 Selective Replacement.

A unit's combat capability can be regenerated by providing the necessary replacement personnel and equipment and by repairing damaged equipment. If a majority of the unit has been replaced, however, the unit should, if possible, undergo a period of training or participate in less intensive actions before being assigned critical combat missions.

9.3.3 Composite Action.

Remnants of two or more units that have been depleted can be used to reconstitute an effective fighting force in an extreme emergency.

SECTION 10
ORGANIZATIONAL IMPACTS

10.1 MANEUVER UNITS.

In order to operate in an integrated nuclear/nonnuclear battlefield environment, maneuver companies will require a capability to monitor continually for the presence of chemical agents and nuclear radiation. To provide this monitoring capability, trained personnel must be available within the individual companies. Consideration must also be given to the need for added personnel and protective equipment to facilitate operations in a chemical or nuclear contaminated area. Because of the potential impact of both chemical and nuclear contaminated areas on combat operations, communications to receive and rapidly disseminate battle damage information will be essential. The dispersal of units and logistical facilities will also place additional communications requirements on maneuver companies, as well as all other units in the operational area.

Because of the possibility of extensive damage by a single chemical or nuclear attack, plans must be made for redundancy of battalion level functions. Functions which must be maintained are those associated with intelligence gathering and combat operations. These functions must also be duplicated at brigade level to ensure continuity of operations.

10.2 DIVISION AND CORPS.

The critical function that must be performed at both division and corps level is the continuous fire-planning for both nuclear and nonnuclear operations as described in Section 7. The data gathered and disseminated must be identical throughout all operations so that there will be no transition signature associated with the intent to conduct nuclear fires. To some extent this will require an increase in the fire-planning staff as well as in the intelligence and operations staff. To insure that the communications associated with nuclear operations will not be a signature, communication deception during all phases will be necessary. In addition, there will be a greater need for encryption of messages, and therefore of the equipment/devices necessary to support the increase.

The target acquisition systems and the collection network necessary to develop and maintain nuclear fire-planning must be operational at all times. This is especially significant in that there will be an inherent or natural tendency to avoid acquiring such data if there is no impending planned use. This full-time planning will result in reduced time for the development and production of a fully coordinated fire-plan based on detailed targeting, and the tracking of targets not previously attacked.

In order to make optimal use of the vast amount of targeting data, and to develop and implement the fire-plans, additional communications may be necessary. To avoid a significant increase in communications equipment, consideration must be given to the use of burst type rather than voice type data transmissions. This will provide the added benefit of increasing the security of information transmitted.

Successful operations in the nuclear/nonnuclear battlefield will require the development and deployment of nuclear and chemical monitoring and assessment equipment. A comprehensive assessment capability must be available so that plans and operations can be modified rapidly to take advantage of nuclear use in support of NATO operations. The effects of enemy attacks can be greatly reduced if the limits of the affected areas can be determined. Such information will assist in the deployment of unaffected units and in the movement of reserve or replacement units to fill the gaps or weak spots caused by the enemy's direct attack.

The size of division and corps headquarters will have to be reduced to avoid creating extremely lucrative targets. The reduction can best be accomplished by splitting the headquarters into two or more echelons and separating them by a considerable distance. This separation will not only make the targets less lucrative but allow for greater deception in operations. The probability that at least one of the division/corps locations will be operational at all times will similarly be increased.

10.3 ENGINEER SUPPORT.

The major impact on the engineer support will be the need for an increased capability to clear obstacles such as trees that have been blown down by nuclear attacks. The wide distances over which the division/corps

will operate will cause an even greater strain on the capability of the combat engineer units.

10.4 LOGISTICAL SUPPORT.

The logistical organization required to support integrated nuclear/nonnuclear operations is provided in Section 8. The principal change from the current organization is the establishment of Brigade Support Battalions.

SECTION 11
WEAPONS/SYSTEM IMPACTS

11.1 TIME FRAMES CONSIDERED.

The concept for integrated nuclear/nonnuclear operations presented in this paper is intended to improve the capability of US/NATO forces considering weapons and systems either in being, programmed by the 1986 time frame, or available in the 1986 time frame through adjustments in TOE's and/or procurement quantities. The development and acquisition of improved weapons and systems beyond 1986 which are suitable for employment in support of this concept will further enhance US/NATO capabilities.

11.2 TRENDS REQUIRED IN WEAPONS AND SUPPORTING SYSTEMS.

Weapons systems requirements for the conduct of integrated nuclear/nonnuclear operations include an increase in the range of nuclear-capable weapons. Dual-capable artillery with ranges of 50 to 70 km appear desirable if equipped with terminal guidance to improve delivery accuracy. Improved target acquisition and intelligence processing equipment/ procedures to provide higher confidence acquisition and tracking of Soviet second echelon divisions, in the range of 120km to 300km, would assist in visualizing the shape of the developing battle, and in selecting options to meet the developing threat. To prepare for the nuclear environment in which the forces must operate, equipment for maneuver units must be "harder" to nuclear effects, NBC protective equipment must be provided, and equipment must be more mobile in general. NBC detection, monitoring, and decontamination equipment must be provided in sufficient quantity to ensure the ability of units to operate in the environment that will exist.

SECTION 12
TRAINING

12.1 INTEGRATED OPERATIONS.

Units will be capable of conducting successful operations on the integrated nuclear/nonnuclear battlefield only if they have been sufficiently trained and psychologically prepared to conduct operations in that environment. Impacts on training are many, covering a broad scope of areas and all echelons of Army personnel and organizations. The implications of the nuclear environment, and the concept for integrated operations, must be incorporated into FM's and training literature, courses of instruction for all Army personnel from basic training through the senior service schools, unit training, and field exercises. Such field training must extend beyond the initial utilization of nuclear weapons to include continuing operations in a nuclear environment.

12.2 NBC PROTECTION, DECONTAMINATION, AND RECONSTITUTION.

Not only must individuals be trained in NBC protective measures, but training should be extended to unit training and field exercises as well. Units must be required to train for mission accomplishment wearing protective clothing. They should practice monitoring and decontamination, not in isolated NBC training but integrated into the unit's regular training exercises. The development of realistic training devices for these purposes would greatly facilitate such training. The training must include dealing with heavy losses to include damage assessment, reporting, and reconstitution steps. Units should be tested on mission accomplishment after undergoing simulated personnel losses to determine the effectiveness of crosstraining and to provide experience to units and commanders concerning the impact of various degrees of unit degradation.

12.3 PSYCHOLOGICAL PREPARATION.

Although the psychological impact of nuclear weapons on the battlefield remains largely unknown, it is apparent that the adverse impact can be alleviated to some degree through training. Leaders and commanders

at all levels should not only "think nuclear", they should think "integrated nuclear/nonnuclear." They must receive instruction on, and give considerable thought to, the subject of mission accomplishment in an integrated environment. The need for an effective integrated operations capability cannot be met by relying on a few nuclear experts. Only when all forces are fully trained for the nuclear environment at the individual and unit levels can they be expected to be prepared psychologically to function in such an environment.

APPENDIX I

OPERATIONAL CONCEPT FOR THE TACTICAL EMPLOYMENT OF NUCLEAR WEAPONS ON THE INTEGRATED NUCLEAR/NONNUCLEAR BATTLEFIELD

SUMMARY

The purpose of this paper is to develop an operational concept for the tactical employment of nuclear weapons which will improve the capability of United States Armv forces to operate successfully with other NATO forces on an integrated nuclear and nonnuclear battlefield. In particular, the concept will support the Battlefield Development Plan (BDP) and provide a basis for detailed planning in Division 86 and subsequent BDP efforts.

The Allied divisions in Europe will defend well forward. The Soviet/WP concept is to use surprise, mass, and momentum to overcome this defense and achieve success. Mass and momentum are achieved through the echelonment of troop formations in offensive operations. Second echelon units are used to intensify efforts on the main axis and exploit success at high rates to a great depth. The continuous commitment of Soviet second echelon units to the battle offers a substantial threat to a successful NATO defense. This is particularly true of Soviet second echelon divisions. These are the units whose doctrinal objectives are beyond the depths normally associated with a European forward defense concept and whose success would likely make a forward defense most difficult. Consequently, disruption of the Soviet/WP force generation capability is imperative. Our current forces and tactics are structured to destroy the enemy as he closes into successive battle positions. Although we may achieve very favorable loss exchange ratios, total reliance on firepower based force destruction of continuously committed Soviet/WP forces is not expected in the end to prove successful. The Soviet/WP can generate and sustain numerically superior forces which can, if they are willing to accept the heavy losses, ultimately achieve their objectives. Further, technology has been exploited by both sides to the point that the advanced weapon systems engaged in the battle offer little immediate opportunity to

gain a decisive advantage through technological innovation. It is imperative to develop alternatives which can generate significant advantage. Battlefield interdiction can provide this leverage by attacking the echelonment apparatus which is a vital part of the Soviet capability for generating and sustaining the numerical superiority needed to win. The primary objective for battlefield interdiction is to disrupt the momentum of echeloned forces prior to their commitment to battle. The goal is to preclude an unacceptable presentation of forces in the first echelon battle and to develop the opportunity for initiating offensive action.

The principal elements of the integrated tactical nuclear concept are:

- Interdiction of enemy forces before they join the battle is the preferred role for tactical use of nuclear weapons.
- In the central battle, effective counterfire will contribute directly to the survivability of the total force. Other central battle targets could include C^3, air defense, and unengaged maneuver elements.
- Tactical employment of nuclear weapons provides a means for dealing with otherwise unmanageable target presentation rates and can prevent catastrophic failure of conventional forces.
- Tactical employment of nuclear weapons provides an opportunity for initiating offensive operations.
- All planning, coordination, and employment of nuclear weapons must be integrated with nonnuclear force operations both offensive and defensive.
- Integration is achieved through use of means common to both nonnuclear and nuclear operations for intelligence collection and fusion, target acquisition, C^3, operations planning, and fire support. Transition between nonnuclear and nuclear operations should be avoided.
- Dual-capable systems are essential for the continuous target planning and attack required for integrated nuclear/nonnuclear operations.

Development of the detailed tactics, procedures and doctrine; possibly some modification of organization and materiel; and conduct of the education and training necessary to implement this concept can greatly improve the capability of the Army to perform its mission on the integrated nuclear/nonnuclear battlefield.

APPENDIX II

SOVIET THEATER NUCLEAR DOCTRINE

II.1 INTRODUCTION.

II.1.1 Problem.

To explain the basics of Soviet Theater Nuclear Doctrine.

II.1.2 Purpose.

The purpose of this paper is to present a short, fundamental explanation of Soviet Theater Nuclear Doctrine.

II.1.3 Scope.

This paper which is intentionally limited in length will present only the most fundamental elements of Soviet Theater Nuclear Doctrine. It is intended to give the reader a working knowledge of how the Soviets indicate they will employ their theater nuclear forces, both ground and air. The paper explains briefly how they plan to fight a theater nuclear war.

II.2 PROLOGUE.

In the Soviet view, theater nuclear weapons are a fundamental part of their war-fighting capability and not simply an adjunct to conventional forces. War-fighting is given first priority in the Soviet approach to theater nuclear operations. In their view, nuclear weapons are a powerful and effective means of tactical combat. The Central Committee in fact has adopted a strong, offensive, nuclear-oriented, war-fighting doctrine; thus the Soviet military strategy is clearly offensive with nuclear weapons playing the lead role. Their forces are structured, trained, and equipped to fight a nuclear war; they expect to do so.

II.3 DOCTRINE FOR THEATER NUCLEAR OPERATIONS.

An in-depth, massive, preemptive nuclear strike in conjunction with immediate, high-speed air, naval, and ground exploitation is the dominant Soviet concept for war against NATO. The major components that enter most prominently into this concept are the strategic rocket forces, the ground forces, the air forces, and some elements of the naval forces. This theme is stressed repeatedly in open-source, military literature. Although the Soviets acknowledge that war may start conventionally or with

the limited use of nuclear weapons, they believe escalation is probable by NATO and intend to strike first with a massive, in-depth nuclear attack. This assault is designed to:

- Destroy NATO's nuclear attack capability,
- Destroy the main groupings of combat forces including their command and control systems,
- Isolate the battlefield,
- Breach the main line of defense, and
- Establish attack corridors.

The importance of surprise and of striking first in a nuclear war is clearly indicated by the Soviets:

- Massive nuclear missile strikes at the armed forces of the opponent .... can determine the victory of one side and the defeat of the other at the very beginning of the war. Therefore, a correct estimate and use of force elements against the opponent before he uses them are the key to victory.

II.4 SOVIET DOCTRINE ELEMENTS (CONCEPT OF OPERATIONS).

The material below provides an overview of the Soviet concept of operations with particular emphasis on how their nuclear and conventional capabilities are combined.

II.4.1 The Initial Nuclear Strike.

In any Soviet discussion of nuclear war, one word dominates all others .... "decisive". In their view, although war may not be started by the socialist countries, USSR/WP forces intend to finish it in a triumphant and decisive manner. The Soviets believe the war should be a decisive military and political victory; the primary instrument in bringing this about is the initial, massive, simultaneous, in-depth nuclear strike. The Soviet interest in a "short war" further intensifies their desire to be decisive in its initial stages. They hope to negate US mobilization and logistic strength and also to preempt NATO's massive first use of nuclear weapons.

The Strategic Rocket Forces (SRF) that are located in the USSR would be tasked to deliver much of the theater-level strikes. In the words of Marshal Grechko:

> "The Strategic Rocket Forces, which constitute the basis of the military might of our armed forces, are designed to annihilate the means of the enemy's nuclear attack, large groupings of his armies, and his military bases; to destroy his military industries; and to disorganize the political and military administration of the aggressor as well as his rear and transport."

The SRF has responsibility for land-based ballistic missiles with ranges greater than 620 miles; it is believed to have nearly a half-million personnel.

Soviet tactical commanders, considering possible methods of employing nuclear weapons, believe missiles have great advantages because of their remarkable qualities--great range, tremendous speed, invulnerability in flight, high accuracy, mobility, and all-weather capability. With Soviet development of nuclear weapons, the destructive potential of their armed forces increased significantly. The rapid advances in USSR missile technology which followed, created conditions for extensive use of this delivery system to inflict heavy losses on the enemy in theater nuclear operations.

In addition to tactical missiles, the Soviets could employ large-caliber artillery weapons with nuclear rounds for short-range targets. Nuclear artillery would be ideal for making the initial effort at opening the attack corridor. Three important qualities of Soviet artillery are its high mobility, long range, and rapid rate of fire. These were attained by the introduction of new weapons and prime movers which can tow the guns at great speeds under various road conditions, as well as by the increased proportion of self-propelled artillery. The SRF missiles used in conjunction with tactical missiles and Soviet nuclear artillery constitute a formidable threat to NATO.

II.4.2 Ground Forces Exploitation.

Ground forces will be used to exploit the nuclear strike by destroying enemy resources, and by seizing specific positions, areas, and

objectives. Ground troop actions are coordinated with nuclear strikes and complement them. Soviet ground forces include:

- Motorized rifle and tank troops,
- Missile (short-range) and artillery troops,
- Air defense troops, and
- Special support troops (signal, engineer, chemical, radio, mortar, transport, helicopter, and attack aviation).

However, the bulk of these combat troops are tank and motorized rifle troops that combine to form the core of two major-type formations which confront NATO .... the combined arms army and the tank army. Other important ground force units are airborne troops which have been specially trained for air-drops in rear areas and for conducting combat operations in coordination with advancing missile, aviation, motorized rifle, and tank troops. The complete motorization and high mechanization of the ground forces assist the Soviets in their efforts to exploit the nuclear assault. The importance of the ground forces and their role is clearly stated in Soviet doctrine:

- In conjunction with nuclear strikes, tank, aviation, motor rifle, and airborne troops will be employed to achieve final defeat of enemy troops.
- The main purpose of military operations in land theaters is the decisive defeat of enemy units, the capture of vitally important objectives, and occupation of territory ....

This concept calls for employing aviation, airborne assault troops while launching high-speed combined arms attacks led by armor immediately after the nuclear strike. The ground forces are structured for mobility to:

- Maximize NATO's targeting problems,
- Exploit the shock resulting from the nuclear strike, and
- Minimize transit-time through radioactive or chemically contaminated areas

In analyzing Soviet ground force operations literature, the main points that emerge are:

- In a war with NATO, the Soviet objective will be to seize and hold Alliance territory through the use of ground forces. The initial nuclear barrage makes pursuit of this objective possible.
- The ground forces are basically conventional (i.e., tank, artillery, aviation, and motor rifle) with their missions, characteristics, and training altered to permit operations and exploitation of the initial nuclear barrage.

These points indicate that the heart of the Soviet concept is not the initial nuclear barrage but rather its exploitation by ground forces. Thus, even in nuclear war, ground forces are expected to be the primary factor in deciding the outcome of combat operations.

II.4.3 Strike Coordination.

Since nuclear strikes are considered a combat component, the exploitation operations that are conducted by tank, aviation, and motorized rifle units are closely coordinated with each other and with the nuclear delivery units. Troop operations and nuclear strikes are considered a uniform and inseparable process joined by a common concept. Coordination therefore between nuclear strike and conventional exploitation forces is essential.

Coordination, warning, and troop safety occurs primarily by allocating time and space to nuclear forces for their strike; conventional forces are warned not to penetrate (attack) until after a given time (H-hour). Soviet literature indicates:

- ... troops deploy in turn into approach march and combat formations at their designated lines, to which they move at a precisely established time,
- The nuclear safety line is crossed by attacking troops at a precisely designated time,
- ... and at a designated time ground forces break into the forward edge of the enemy's defense.

The use of "H-hour" appears in different military writings. When "H-hour" appears, it is used primarily to coordinate the exploitation that

follows, not to warn nearby troops. Coordination between nuclear strikes and the conventional forces is almost entirely focused on exploiting the effects of the nuclear weapon strike and maximizing the speed with which the exploitation can occur.

II.4.4 Air Assault Operations.

Air operations provide crucial capabilities in all phases of the Soviet theater nuclear offensive; those discussed most often are air assault and airborne operations. They are especially important to NATO because of the Soviet tendency to value them nearly as much as armored operations. Airborne and air-assault landings are to occur as soon after the nuclear assault as possible and are frequently designed to take place covertly in adverse weather situations. Soviet literature indicates:

- The use of airmobile and airborne forces is important in improving offensive methods under present conditions. Being used in large numbers after nuclear strikes, these forces are capable of ...
- In a war where nuclear weapons are used extensively, airborne infantry will play a very important role.

Three types of airborne operations are envisioned by the Soviets: (1) helicopter assault, (2) paratroop assault, and (3) transport landing deep in NATO territory. These operations will capitalize on the results of the massive nuclear strikes. Specifically, these efforts are expected to:

- Capture nuclear weapons storage areas,
- Secure objectives like river crossings, bridgeheads, mountain passes and defiles,
- Annihilate strategic objectives which cannot be secured any other way, and
- Achieve high rates of advance for the combined arms and tank armies.

The Soviet air forces that are most prominent in the NATO context are long-range, frontal, and naval aviation. Long-range aviation assets based in the Soviet Union will be used to strike deep objectives like logistic centers, harbors, ports, and carrier task forces. Soviet naval

aviation is expected to assist in destruction of NATO's naval capabilities. One of the tasks that long-range aviation shares with naval aviation is destruction of sea-based means of nuclear attack, especially aircraft carriers. The Soviets are expected to use nuclear weapons (rockets or bombs) in conjunction with long-range and naval aviation operations.

Frontal aviation performs three basic tasks in theater nuclear operations:

- Reconnaissance,
- Intercept, and
- Strike.

The final reconnaissance to update target data before the attack is one of the most important missions of frontal aviation. An analysis of the conditions for waging a nuclear war has convinced the Soviets that all services of their armed forces need the intelligence data provided by aerial reconnaissance. Frontal aviation reconnaissance assets operate in two modes: (1) enemy target data as it is identified is immediately radioed to authorities; and (2) aerial photographs are taken for subsequent processing and target confirmation. There are also indications of real-time video information being transmitted for targeting purposes. Reconnaissance aircraft are equipped with complex, automated systems to gather information day or night, in any weather, from low or high altitudes. After the attack has begun, reconnaissance activities continue to play a major role; then they appear to take the form of armed strike reconnaissance.

Two frontal aviation questions are unresolved. Open literature neither indicates munitions types (nuclear or conventional) nor does it explain operations in support of ground troops. Although the evidence is not conclusive, it appears that armed reconnaissance which is not close to ground troops could be nuclear. Direct support for ground troops apparently is conventional and carried out only if air defenses permit.

The principal missions of frontal aviation strike assets are locating and destroying:

- Mobile missiles,

- Retreating force concentrations,
- Control centers, and
- Major force groupings.

Although frontal aviation maintains a role in striking fixed targets such as air bases, most of this mission now lies with the Strategic Rocket Forces.

II.4.5 Planning.

Three elements are fundamental to Soviet planning for theater nuclear operations .... speed, pace, and timing. These elements are stressed repeatedly in USSR military literature and seem to translate into planning for a .... "rapid rate of advance in exploiting results of the initial nuclear strike." For example:

- Mobility and the high tempo of combat operations bring success in a battle or operation.
- The broad maneuver and rapid sequence of combat operations calls for the most urgent accounting of time.
- Employment of nuclear weapons, high troop mobility, and saturation of the battlefield with tanks will lead to rapid changes in situations during the offensive. Under these conditions, commanders and staffs must consider and value not only hours but minutes and seconds....

The underlying capability that the time factor affects most is battlefield mobility including troop mobility and closely related factors like:

- Rapid and effective mission accomplishment,
- Maneuver and reaction to any change in the battlefield situation,
- Ease of control, and
- Flexibility.

Coupled with the Soviet emphasis on "rapid exploitation" is another point .... "concentration of efforts." The latter is tantamount to, "application of force in the proper location at the decisive time." How do the Soviets say this?

- To attain victory over the enemy .... main efforts must be concentrated on the most important axis or sector and at the right time .... to form the necessary superiority over the enemy in men and weapons.

Several other factors that the Soviets address in their planning for theater nuclear warfare are surprise, combat activity, and combat effectiveness. Briefly their doctrine indicates:

- Surprise brings success in a battle or operation.
- With all else equal, success in a battle or operation is achieved by the side which acts more resolutely, takes the initiative, and holds it firmly.
- In a battle or operation, combat effectiveness of troops must be maintained at the level which assures the successful accomplishment of combat missions.

When all these Soviet concerns are integrated, addressed in the planning cycle, and articulated in the form of the exploitation following a massive, surprise nuclear strike, the picture created is one of a highly orchestrated attack. All units and elements have precise missions which are to be carried out on a preplanned timetable. This of course means that the Soviet planning effort is pushed to the ultimate .... schedules, timetables, definite rates of advance, and so forth. The notion of precise planning, preplanning, and adherence to exact schedules projects the picture of a highly structured, overdesigned, inflexible operation. The Soviets, however, exhort their commanders to maintain initiative while doing their planning.

II.4.6 Targeting.

Soviet theater nuclear targets are very different from those which would be attacked in a strategic exchange. In theater operations, Soviet targets are military objectives and are consistent with Soviet territorial goals. The principal factors that determine Soviet theater nuclear targets appear to be the:

- Nature and objectives of military operations, and
- Most vulnerable components of targets.

The general guideline of targeting only those objectives which are necessary to achieve Soviet military goals is expressed repeatedly in discussions that address the most vulnerable target components. It is obvious that by following this principle, the Soviets plan to use NATO resources during the course of their military operations and thereafter, if possible, in the USSR. To assure the prescribed average rate of advance--fifty to eighty kilometers per day in the exploitation phase after nuclear weapons are used--massive quantities of artillery are to be used. US and NATO command posts and direct fire systems are to receive 1000 rounds per installation. Each mortar platoon is alloted 200 rounds while surface-to-surface missile launcher units are to receive 1000 rounds. A nuclear-capable artillery battery is scheduled for receipt of 2000 rounds. Another practical consideration that guides Soviet targeting is the wind pattern across Europe. The prevailing winds are from the west so it is very much in the Soviet interest to target selectively, avoid "overkill" with large-yield (megaton) weapons, and thereby limit the fallout on Eastern Europe, the western USSR, and on USSR/WP occupation troops.

The principal theater nuclear targets are indicated with considerable consistency in Soviet military writings. In identifying targets or missions the underlying theme is that only the most important and suitable objectives will be attacked with nuclear weapons; they will not be used to do conventional jobs. Lesser targets will be neutralized or destroyed by artillery, aviation, tanks, or other weapons using conventional ammunition. However, nuclear weapons will be employed in combination with conventional munitions and chemicals in accordance with Soviet doctrine. The Soviets have pointed out that use of nuclear weapons against insignificant secondary objectives contradicts the very nature of the weapon.

The top-priority Soviet theater nuclear targets are:

- Nuclear weapon stocks,
- Nuclear delivery systems, and
- Associated command and control systems.

The Soviets indicate that without eliminating or neutralizing these objectives, it is impossible to conduct successfully other theater military

operations, offensive or defensive. This of course means that the Soviet nuclear onslaught will include NATO's:

- Nuclear-capable aircraft,
- Nuclear artillery,
- Nuclear missiles,
- Nuclear storage areas, and
- Quick Reaction Alert (QRA) assets.

Certain other military targets will be targeted with nuclear weapons. The Soviets explain that strikes will be made against troop concentrations especially at river crossings, gorges, and mountain passes. This employment is to be accomplished suddenly and in mass throughout the entire depth of the enemy's combat deployment with the aim of destroying these important objectives:

- Tank, artillery, and motorized infantry groupings,
- Major command posts, and
- Lines of communications functions.

II.4.7 Trends.

Over the last decade, the USSR has made extensive qualitative and quantitative improvements in its theater forces, conventional and nuclear.

The Strategic Rocket Force has been modernized and its readiness appears to have increased markedly. The current Soviet missile inventory targeted against NATO is far more accurate than earlier generations. In fact, there has been a sharp increase in accuracy of systems now deployed over those in use a decade ago. The most plausible explanation for this enhancement is the Soviet desire to improve their capability against military objectives. As Soviet accuracy improves, the overall effectiveness of their force will increase.

The evolution in Soviet aviation since 1960 has been particularly rapid. The USSR has addressed some of its most conspicuous vulnerabilities through technical innovation and a dedicated effort. Since 1970, the Soviet Union has produced more than 5,000 tactical aircraft; the annual production rate is maintained at about 1,800. While the quantity of aircraft is undoubtedly very important, their improved capability has enabled

a closer alignment with Soviet theater nuclear warfare doctrine. Soviet tactical aircraft are modern, supersonic, state-of-the art weapon systems. They have sophisticated avionics, electronic countermeasures, terrain-avoidance radar, and extensive ordnance--- all of which are characteristic of high performance, tactical jet aircraft. Most tactical aircraft being produced today by the USSR are nuclear capable as opposed to only a portion fifteen years ago.

Soviet ground force trends also embody improvements in quality and quantity which have been sought to satisfy doctrinal requirements of rapid and decisive exploitation. The military goal of Soviet planners for three decades has been to thrust their military power 600 kilometers into NATO territory during a ten to fourteen day period. This objective has become evident through improvements in electronic countermeasures, communications for control, mobility, reconnaissance , artillery, armor, and tactics. The underlying theme has been increased production of high-quality war-fighting equipment.

APPENDIX III
NUCLEAR EFFECTS

There are basically four nuclear effects that must be taken into account: Flash, Radiation, Blast and Thermal.

Flash - Troops with line of sight to the brilliant flash of a nuclear detonation, particularly at night, may suffer temporary or permanent blindness.

Radiation - Troops with line of sight to the fire ball of a nuclear detonation may suffer radiation poisoning. The amount and subsequent effects of the poisoning is dependent upon the weapon yield, height of burst and proximity to ground zero. Personnel may become immediate casualties, incapacitated within hours or days, or able to continue their duties depending upon the intensity of the radiation to which they were exposed. Radioactive fallout subsequent to the burst can also pose a hazard to personnel by contamination of personnel, food, equipment and by making areas uninhabitable and impassable for extended periods of time. In all cases radiation poisoning is cumulative. Exposure to small doses over a period of time can have the same effect of a single lethal dose.

Blast - The initial and secondary shock waves caused by a nuclear detonation can result in initial casualty and damage to equipment, resources, and personnel by dragging and rolling, in secondary casualty and damage by flying debris, and in isolation of units due to tree blowdown and the creation of other impassable obstacles.

Thermal - Thermal radiation from a nuclear blast can produce casualties and damage by causing direct burns, combustion, and subsequent fires.

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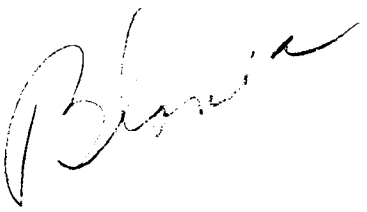

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