

1/16/2006

HR 70-14

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CENTRAL INTELLIGENCE AGENCY

WASHINGTON 25, D. C.

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MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : "Combat with Enemy Nuclear Artillery, Free
Rockets, and Guided Missiles in Offensive
and Defensive Operations of an Army"
(Chapter II)

1. Enclosed is a verbatim translation of Chapter II of an seven-chapter TOP SECRET Soviet publication entitled "Combat with Enemy Nuclear Artillery, Free Rockets, and Guided Missiles in Offensive and Defensive Operations of an Army". It was issued by Scientific-Research Artillery Institute No. 1 in Leningrad in October 1960.

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[Redacted]

Richard Helms

Richard Helms
Deputy Director (Plans)

Enclosure

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Original: The Director of Central Intelligence

cc: The Director of Intelligence and Research,
Department of State

The Director, Defense Intelligence Agency

The Director for Intelligence,
The Joint Staff

The Assistant Chief of Staff for Intelligence,
Department of the Army

The Director of Naval Intelligence
Department of the Navy

The Assistant Chief of Staff, Intelligence,
U. S. Air Force

The Director, National Security Agency

Director, Division of Intelligence
Atomic Energy Commission

National Indications Center

Chairman, Guided Missiles and Astronautics
Intelligence Committee

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1 October 1962

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COUNTRY : USSR

SUBJECT : "Combat Against Enemy Nuclear Artillery, Free Rockets, and Guided Missiles in Offensive and Defensive Operations of an Army" (Chapter VII)

DATE OF INFO : October 1960

APPRAISAL OF CONTENT : Documentary

SOURCE : A reliable source (B).

Following is a verbatim translation of Chapter VII of a TOP SECRET Soviet publication titled "Combat Against Enemy Nuclear Artillery, Free Rockets, and Guided Missiles in Offensive and Defensive Operations of an Army". This document contains seven chapters and was published on 15 October 1960 by Scientific-Research Artillery Institute No. 1 in Leningrad. Each chapter will be disseminated as it becomes available and is translated.

In some cases, there are imperfections in the original text which leave doubt as to the accuracy of translation. Question marks are inserted in brackets following uncertain words or phrases. As in other IRONBARK reports, transliterated Cyrillic letters are underlined in translation, while Greek and Roman letters are given as in the original.

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Chapter VII

"Planning the Combat Against the Enemy's Offensive
Nuclear Weapons in an Army Headquarters of
Missile Troops and Artillery"

1. Planning the Combat Against the Enemy's Offensive
Nuclear Weapons During the Period When an Army
Is Preparing an Offensive Operation

The most important task for troops of a front and army during the period when they are preparing an offensive operation is the attainment of fire superiority over the enemy and, above all, of superiority in offensive nuclear weapons. The battle to attain superiority over the enemy's offensive nuclear weapons can start several days, and in some more rare though possible cases, several weeks before the beginning of the operation. This combat is conducted by destroying the enemy's nuclear ammunition at depots and assembly bases, by destroying and neutralizing subunits and units armed with nuclear ammunition, and by destroying control points, technical positions, and other objectives which support the activities of these units and subunits. The battle to attain superiority over the enemy's fire power and, above all, over his nuclear weapons, constitutes the main part of fire preparation for an offensive operation.

Army tactical missiles and artillery carry out part of the tasks of combating the enemy's nuclear weapons during the fire preparation period; these consist mainly of the tasks of destroying and neutralizing the enemy's offensive nuclear weapons. Operational-tactical missiles of the army

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carry out the tasks of combating the enemy's operational-tactical offensive nuclear weapons and also the tasks of destroying depots, supply points, and nuclear ammunition assembly bases.

In certain cases, these tasks can be carried out at the direct command (orders) of the commanding officer of missile troops and artillery of the front. Such cases can arise when a front finds that the amount of forces and weapons under its direct command is inadequate and also in cases where it proves inadvisable to employ the front's weapons for some fire task. In the remaining cases, operational-tactical missiles will carry out these tasks on orders from the commanding officer of the army's missile troops and artillery.

The combat against offensive nuclear weapons during the period when an army is preparing an offensive operation needs careful planning and organization. Parallel with this, close coordination must be organized with aircraft operating in the army's offensive zone and on its flanks, and arrangements must also be made to ensure systematic and timely receipt of reconnaissance information obtained by the front's reconnaissance means and by reconnaissance by adjacent armies.

Coordination between the headquarters of an army's missile troops and artillery and the headquarters of an air army (or headquarters of air large units operating in the army's offensive zone) is planned when preparation for an offensive operation begins on the basis of the decision of the commander of the combined-arms army, and the plans are made more precise during this preparation and also during the army's operation.

In planning coordination between missile troops and artillery and aircraft, the headquarters of the army's missile troops and artillery and the headquarters of the air army (through their representatives), when working out measures to combat the enemy's offensive nuclear weapons during the period when the operation is being prepared, must coordinate the following:

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— procedure for carrying out reconnaissance of the enemy's tactical and operational-tactical offensive nuclear weapons and the ways in which reconnaissance information is to be exchanged;

— procedure for destroying and neutralizing the enemy's tactical and operational-tactical offensive nuclear weapons, both by the forces and weapons of missile units and artillery or aircraft, as well as by the combined efforts of missile units, artillery, and aircraft;

— procedure and time for neutralizing the enemy's subunits of antiaircraft guided missiles and antiaircraft batteries;

— procedure for checking the results of nuclear strikes against the enemy's offensive nuclear weapons.

The bases on which the destruction (neutralization) of the enemy's offensive nuclear weapons is planned in the headquarters of the army's missile troops and artillery are: the decision of the army commander, the army's plan of combat operations, the instructions of the commanding officer of the front; missile troops and artillery regarding planning the combat against the enemy's nuclear weapons, the data regarding the nature and scope of the tasks allotted to missile troops and artillery in combating the enemy's nuclear weapons, the reconnaissance data available regarding the enemy, and information regarding the availability of missile and artillery units and subunits and also of ammunition with nuclear and conventional fillings.

Planning the combat against the enemy's offensive nuclear weapons starts with the clarification of the task and an evaluation of the situation.

Having clarified the task and evaluated the situation, the commanding officer of the army's missile troops and artillery, together with his staff, determines:

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— the general tasks of the army's forces and weapons in combating the enemy's offensive nuclear weapons, taking into account the special features involved in conducting the operation;

— the capabilities of the army's organic and attached reconnaissance means for conducting reconnaissance of the enemy's offensive nuclear weapons, how these means should be grouped, and the best way to organize their activities;

— the possible scale on which use can be made of nuclear weapons for combating the enemy's nuclear weapons during the period of preparation and during the offensive operation;

— the capabilities of operational-tactical and of tactical missile units and subunits for combating the enemy's offensive nuclear weapons;

— the capabilities of the army's gun artillery for destroying the enemy's offensive nuclear weapons, and also the possibilities of including the artillery of divisions in the army's first echelon to fulfill this task;

— the necessity of creating a grouping of forces and weapons employed for the combat against the enemy's nuclear weapons, and if there is such a necessity, the composition of this grouping;

— the tasks to be carried out by large units and units of operational-tactical and tactical missiles and of gun artillery subordinate to the army;

— the tasks to be carried out by tactical missile battalions and by the artillery of divisions in the army's first echelon in combating the enemy's offensive nuclear weapons during the period for which they have been included for this combat;

— the necessary organization measures to maintain subunits on the alert on firing positions and launch sites, and to ensure their constant readiness for the immediate

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destruction of the enemy's offensive nuclear weapons on their firing positions and launch sites;

— measures to organize the control of units and subunits of operational-tactical and tactical missiles and of gun artillery: the organization of reliable multi-channel communications, establishment of signals for requesting and stopping fire, signals for occupying and leaving siting areas, as well as other signals for controlling these subunits, and also the organization of an efficient and well coordinated procedure for directing fire at the headquarters itself of the army's missile troops and artillery;

— measures to ensure an uninterrupted supply of nose cones and missiles, and also to ensure the preparation of missiles for launching;

— measures to preserve the viability of missile units and artillery, as well as measures to replace forces and weapons, which have suffered losses as a result of enemy nuclear strikes by reinforcements drawn from units and subunits which have not been brought in to participate in this combat;

— measures to organize coordination between one's own weapons and those of his neighbors in the destruction of offensive nuclear objectives on the army's flanks;

— measures to organize checking the results of the fire effect on the enemy's offensive nuclear weapons.

In determining the general tasks to be carried out by the army's forces and weapons in combating the enemy's offensive nuclear weapons during the operation, the commanding officer of the army's missile troops and artillery must establish whether these forces and weapons are adequate to fulfill the tasks facing them, and in cases where it becomes clear that these forces and weapons will be inadequate, he must determine the possibilities and methods for bringing in additional forces and weapons to

-6-

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carry out the given tasks.

In determining the capabilities of reconnaissance means and the particular features of employing such means under the specific conditions of the operation which is being prepared as well as planning their activities, the commanding officer of the army's missile troops and artillery, together with his staff, must provide for the following:

— the timely deployment and efficient control (nalazhizaniye) of the work of reconnaissance units and subunits:

— the organization of close coordination between the reconnaissance means and the headquarters of the army's missile troops and artillery; the organization, in cases where this is necessary, of coordination between reconnaissance subunits and units and subunits of operational-tactical and tactical missiles and of gun artillery, as well as the organization of coordination between the various forms of reconnaissance;

— the receipt of timely reports regarding the enemy's reconnoitered offensive nuclear weapons from one's own reconnaissance means; the systematic exchange of reconnaissance branches of other arms of troops; and the organization for the timely reporting of the reconnaissance data obtained to army headquarters and to the headquarters of the front's missile troops and artillery.

As a rule, the scale on which nuclear weapons are to be used during the period of preparation for an offensive operation is determined by a decision of the front troop commander.

In the overwhelming majority of cases, an army receives complete and unalterable figures as to what ammunition with nuclear charges and what quantity it can use during the period of preparation for an offensive operation in conformity with its plan. However, the army (its headquarters and the headquarters of missile troops and artillery are envisaged) can and must determine what quantity of ammunition with

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strikes is determined, and tentative evaluation is made of their contaminating effects when the wind is blowing from the most likely directions; the possibilities that operational-tactical units and subunits can destroy two or more targets simultaneously by one nuclear strike are also determined.

The possibilities of delivering strikes against the enemy's offensive nuclear weapons, which are detected in the zones of advance of adjacent armies, are also determined.

In evaluating the combat capabilities of tactical missile units which are directly subordinate to the army, the headquarters of the army's missile troops and artillery determines, first of all, the possibilities of bringing them in to combat the enemy's operational-tactical weapons. On completion [?] of this work, depending on the quantity and yield of the allotted ammunition and the number of units and subunits, their capabilities for destroying the enemy's subunits of tactical offensive nuclear weapons are determined; guided missiles of the "Lacrosse" type, free rockets of the "Honest John" and "Little John" type, and also subunits and single guns of nuclear artillery. When conditions are favorable, an estimate is made of the possibilities of using nuclear ground bursts to destroy and neutralize the enemy's tactical offensive nuclear weapons. In the same way, an evaluation is also made of the combat capabilities of tactical missile battalions of divisions in the army's first echelon, and on the basis of this estimate conclusions are reached regarding the conditions and desirability of bringing them in to combat the enemy's nuclear weapons.

In evaluating the combat and fire capabilities of gun artillery, the headquarters of the army's missile troops and artillery determines the extent to which gun artillery is to be used for the purpose of combating offensive nuclear weapons, determines the tasks which are to be allotted to units of gun artillery, and elucidates the necessity of, and the conditions for, bringing in the

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artillery of divisions in the army's ~~missile troops~~ to combat the enemy's offensive nuclear weapons.

In some cases, in order to ensure the best conditions for planning combat operations in general, and to combat the enemy's nuclear weapons in particular, and also to provide for more flexible control of the forces and weapons brought in for this battle, a definite grouping of these forces and weapons can be created in the army. Such a grouping can be created primarily in those cases where the army will have at its disposal a comparatively large number of one [word missing] units or large units, i.e., when direct control of these forces on the part of the commanding officer of the army's missile troops and artillery becomes rather cumbersome and difficult. Such a grouping can also take place in those cases when combined-arms or tank [?] large units of the army are operating in two or several different axes, when [one line missing] also of gun artillery units for their combat operations on these isolated axes.

What kind of groups can be created in an army? In the light of the modern organization and views on the combat employment of operational-tactical missile large units and units, which provide for the existence in an army of only one brigade consisting of two battalions of three batteries each, there is no need to form some kind of special missile group. The commanding officer of the army's missile troops and artillery himself can control the combat operations of this brigade under any circumstances. The position could be somewhat different if the Army were to get other missile units and subunits as reinforcements. In these cases, conditions would be created in the army for combining the units and subunits allotted to the army as reinforcements within the framework of an army group of operational-tactical missiles. With the modern organization of tactical missile units and subunits and the views still held regarding their combat employment, which

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provide for the existence of tactical missiles only in motorized rifle and in tank divisions, there can be no question of creating any kind of grouping out of them on an army scale. However, experience gained in the latest exercises with troops, involving the use of tactical missiles, has shown that there is an imperative need to have independent units of such missiles under the direct command of the army or to have them as units (large units) of the Reserve of the Supreme High Command. Naturally, when such large units and units are available, there will be practical reasons for combining them into army groups of tactical missiles. The most important task of such groups will be to combat the enemy's offensive nuclear weapons.

When an Army has reinforcement units attached to it, the gun artillery can be combined within the framework of an army artillery group. The main task of this group will be to combat the enemy's artillery and, primarily, his offensive nuclear artillery weapons.

In some cases mixed artillery groups may be created in the army, consisting of units of tactical missiles and units of gun artillery. The situation which determines whether such groups can be created is, first of all, the availability of several independent units of tactical missiles and of gun artillery, and also inadequate mobility of tactical missiles in preparing firings (launchings) against targets of opportunity. In such cases, it is advisable to start the fire effect against the enemy's offensive nuclear weapons upon their detection by neutralizing fire from gun artillery and then, as tactical missiles become ready for launching, to deliver nuclear strikes against them with the purpose of destroying them. When such a method of combat against the enemy's offensive nuclear weapons is used, the best results can be attained only in cases when the control of gun artillery and tactical missiles is effected from one and the same control point. And such control can be organized more easily when gun artillery and tactical missiles are combined

-11-

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within the framework of one missile-artillery group.

However, when an army has only one unit (or one large unit) of gun artillery and one unit of tactical missiles, the organization for the combat against the enemy's nuclear weapons in the above-mentioned way, with direct control of the fire of these units, can and must be undertaken by the headquarters of the army's missile troops and artillery. Therefore, under such conditions missile-artillery or similar groups should not be created.

In allotting tasks to units of operational-tactical and tactical missiles and of gun artillery which are directly subordinate to the commanding officer of the army's missile troops and artillery, the latter, together with his staff, determines:

— at what targets, when and with what ammunition the unit concerned must be ready to destroy offensive nuclear weapons;

— what main and alternative siting area must be prepared for occupation by units (subunits), and also the degree and time of readiness for these areas;

— the procedure for coordination between units (subunits) when several enemy objectives are to be destroyed simultaneously;

— the measures to ensure timely fulfillment of topographical and geodetic work in the main and alternate siting areas;

— the measures for meteorological support of fire (launchings) against targets of opportunity;

— measures to organize uninterrupted and efficient control and of reliable communications with units, as well as directly with the firing subunits;

-12-

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- the quantity and yield of ammunition allotted for the destruction (neutralization) of the enemy's offensive nuclear weapons;

- the time by which units and subunits must be ready to deliver fire for effect against the enemy's offensive nuclear weapons.

In allotting tasks to tactical missile battalions of divisions in the army's first echelon, the following are laid down:

- the quantity and yield of ammunition which can be used to destroy the enemy's offensive nuclear weapons;

- in what siting areas it is advisable to locate divisional tactical missile battalions, from the standpoint of combating the enemy's offensive nuclear weapons;

- measures to organize direct communications between the headquarters of the army's missile troops and artillery and the tactical missile battalions of divisions in order to ensure the possibility of passing orders for fire directly to the battalion;

- the conditions under which the enemy's offensive nuclear weapons may be destroyed (neutralized) on orders from the divisional commanding officer.

In determining the tasks of the artillery of divisions in the army's first echelon in combating the enemy's offensive nuclear weapons, the commanding officer of the army's missile troops and artillery establishes the following:

- what artillery, in what quantity, and under what conditions, can be brought in to combat offensive nuclear weapons;

- measures to organize coordination between divisional artillery and gun artillery and tactical missiles,

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operating in the zones where the divisions are advancing;

— the procedure for receiving reports on the enemy's offensive nuclear weapons which have been detected by divisional artillery reconnaissance, and also the procedure for transmitting to divisional artillery the information regarding the enemy's offensive nuclear targets detected by army reconnaissance means.

For the immediate destruction of enemy offensive nuclear weapons and other important targets [?] detected during the period of preparation for an offensive operation, arrangements are made in the army to maintain operational-tactical and tactical missile battalions and batteries on the alert, as well as battalions of gun artillery.

The degree of readiness of subunits on the alert is determined mainly by their weapons. As a rule, operational-tactical missile subunits must be at 15-to 20-minute readiness, tactical missile subunits at 10-to 15-minute readiness, and subunits of gun artillery should be at 2-to 3-minute readiness to open fire.

In organizing a system of battalions and batteries on the alert, the commanding officer of missile troops and artillery, together with his staff, determines the following:

— the number of operational-tactical missile battalions or batteries employed, the length of time they are to remain on the alert, and from what units they are to be drawn;

— the yield of the charges for missiles issued to battalions and batteries on the alert;

— the number of gun artillery battalions on the alert, as well as the type and quantity of ammunition which is to be allocated to battalions on the alert;

-14-

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— the procedure to call for fire from the battery on the alert.

The plan to combat the enemy's offensive nuclear weapons in a front is drawn up in the form of one or several directives. An army receives a directive on plans to combat the enemy's offensive nuclear weapons with the army's forces and weapons.

The plan for combating the enemy's offensive nuclear weapons during the period of preparation for an army offensive operation can be set out on the fire control map of the army's missile troops and artillery or in the form of a separate [?] plan to combat the enemy's offensive nuclear weapons. Like the first, the second document is drawn up graphically on a map of appropriate scale (usually 1:200,000 with explanations and additions in the form of appropriate legends inserted on the parts of the map not used in working. The main features in the plans to combat the enemy's offensive nuclear weapons during the preparatory period can also be included in the plan for the combat employment of missile troops and artillery in the offensive operation, which can be drawn up by the commanding officer of the army's missile troops and artillery and his headquarters, together with army headquarters, and then confirmed by the army commander.

Regardless of the name of the document which is drawn up, it must include the following details, which are necessary for the commanding officer of the army's missile troops and artillery and his headquarters in order to ensure efficient operational control of the combat against the enemy's offensive nuclear weapons:

— general information on the enemy (defense zones, gun [?] positions, areas in which his reserves are located, etc.);

— the available information on areas in which the enemy's offensive nuclear weapons are located, or

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areas which have been prepared for this, as well as details regarding individual objectives (targets) connected with these weapons (concentration and waiting areas, unloading stations, depots, bases and supply points, areas where technical positions are located, areas where there are control points, firing positions and launch sites, etc.);

— the forward line of one's own troops and the allotted boundaries [?] for armies and divisions;

— the areas to be reconnoitered by artillery spotter aircraft, the areas to be photographed, the areas of operation of reconnaissance and sabotage groups, and areas of special importance [?];

— the areas of operation of fighter-bomber aircraft;

— the main and alternate siting areas of units (subunits) and the firing positions (launch sites) of batteries of army operational-tactical and tactical missiles on the alert, as well as the siting areas of gun artillery battalions subordinated to the army;

— the siting areas of tactical missile battalions of divisions in the army's first echelon;

— the guaranteed maximum ranges of fire of battalions (batteries), and also the minimum ranges of fire;

— the readiness time to deliver fire from the various siting areas;

— information regarding the availability, yield, and time required to prepare the nose cones and missiles in the possession of the army, as well as information regarding the quantity, yield, and times of delivery of nose cones and missiles during the period when the army

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is preparing an offensive operation;

— data on the yield of charges held by batteries on the alert;

— information regarding the availability, as well as the type, quantity, and times of delivery of ammunition for gun artillery subordinated to the army;

— a diagram or table showing when batteries are on the alert;

— a table of call signs of units, subunits and commanders, as well as of collective call signs (tsirkulyatsionnyy pozivnoy) for the system [?] of control;

— a table for coding and decoding orders, instructions and reports, and also of map coding (kodirovka karty);

— the wind direction and velocity for the required time.

The plan to combat offensive nuclear weapons during the period of preparation for an offensive operation or another document containing the plan to combat these weapons constitutes a combat document. It is signed by the commanding officer of the army's missile troops and artillery and by his chief of staff and is confirmed by the army commander. In addition to this document, the headquarters of army's missile troops and artillery must prepare for use tables from which it can be determined what yield is needed to destroy various targets, as well as tables or graphs for determining the probable degree of destruction of a certain objective when using a charge with a particular yield.

One of the most important features of the work of the commanding officer of the army's missile troops and artillery and his headquarters in planning the combat against

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offensive nuclear weapons is working out measures to disrupt the enemy's counterpreparation.

To conduct counterpreparation, the enemy will move forward a considerable part of his offensive nuclear weapons into firing positions and launch sites. Naturally, the scope of the tasks of the army's missile troops and artillery to destroy these weapons at this stage increases considerable, and this, in turn, will demand a considerable increase of forces and weapons employed to destroy the enemy's nuclear weapons because this task cannot be fulfilled solely by the batteries on the alert. In this connection, the commanding officer of the army's missile troops and artillery must make provision not only to organize the system of batteries on the alert, but also to keep the remaining operational-tactical and tactical missile units and subunits, as well as the battalions of gun artillery, in constant combat readiness.

In accordance with this, the plan for combating the enemy's offensive nuclear weapons during the period of preparation for an offensive operation must also contain data relating to the disruption of the enemy counterpreparation. Such details are:

- units and subunits to be employed to disrupt the enemy's counterpreparation;
- the quantity and yield of the charges which can be used to disrupt the enemy's counterpreparation;
- the waiting areas, the areas of firing positions and launch sites occupied by units and subunits employed to disrupt the enemy's counterpreparation, and the routes they will use in moving into siting areas;
- the procedure for directing the fire of units (subunits) employed to disrupt the enemy's counterpreparation.

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The army's preparation for an offensive operation and the corresponding fire preparation for the operation culminates in a massed nuclear strike throughout the whole depth of the planned operation. The massed nuclear strike is made against strong points, centers of resistance, tactical and operational reserves, command posts and control points, communication centers, various objectives in the rear, the most important radar objectives, groupings of gun [?] and antiaircraft artillery, and other highly important enemy objectives.

Among the highly important targets to be destroyed by a massed nuclear strike are undoubtedly also the enemy's offensive nuclear weapons. However, the number of the enemy's offensive nuclear weapons which can be destroyed by a massed nuclear strike or, to be more accurate, during this strike, will be comparatively small.

A massed nuclear strike is delivered at a definitely fixed time against confirmed targets. The most important requirement for targets earmarked for destruction by a massed nuclear strike is the requirement for their positions to be static (stabilnost ikh polozheniya). Of all the objectives which fall into the category of offensive nuclear weapons, only a comparatively small part fulfills the requirement that their positions should be static. Such targets are depots and supply bases, technical positions, bases for the assembly of nuclear charges, waiting positions, shelters built for personnel and equipment, etc.

As a rule, the firing positions and launch sites of offensive nuclear weapons do not present static targets. They can be more or less static targets when fulfilling the role of weapons on the alert, similar in this respect to our batteries on the alert.

Thus, during a massed nuclear strike it is possible to destroy and to neutralize mainly targets in the rear and the technical positions of the enemy's offensive

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nuclear weapons, and also the particular offensive nuclear weapons which will be located in equipped shelters at waiting positions. Offensive nuclear weapons at firing positions and launch sites can be destroyed comparatively rarely during a massed nuclear strike, mainly only in those cases when they are detected immediately before a massed nuclear strike.

In planning a massed nuclear strike, the commanding officer of the army's missile troops and artillery, with his headquarters, determines:

— what targets, including the enemy's offensive nuclear weapons, it is most advisable to destroy by a massed nuclear strike;

— on what targets last-minute reconnaissance should be made and what reconnaissance means should be employed to carry out this task;

— what operational-tactical and tactical missile units and subunits should be used to carry out various tasks within the system of a massed nuclear strike;

— in what siting areas operational-tactical and tactical missile units and subunits should be disposed;

— how many and which subunits should not take part in the massed nuclear strike but should be brought to a state of complete combat readiness for the immediate destruction of the enemy's offensive nuclear weapons, if the enemy attempts to organize a counter nuclear strike after our strike and our artillery preparation for the attack. ¹

¹ It is envisaged that fire preparation for the attack culminates not only in a direct nuclear strike carried out by operational-tactical and tactical missiles, but also by massed fire from conventional and missile artillery. The delivery of this fire constitutes the essence of the concept [?] of artillery preparation for an attack.

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— what offensive nuclear weapons it is desirable to destroy and to neutralize by fire from gun artillery during the artillery preparation for the attack;

— the advisable allotment of fire tasks to destroy the enemy's offensive nuclear weapons between army operational-tactical missiles, tactical missiles, and gun artillery, as well as units and subunits equipped with the same weapons but located in different siting areas, with the result that their ranges of fire vary;

— the advisable yield, type, height, and optimum position for the ground zero of the nuclear burst for the destruction of each individual target or group of targets;

— the safe distance for our troops from the nearest nuclear strikes;

— the signals requesting and stopping fire.

The allotment of fire tasks for a massed nuclear strike can be set out on the army fire control map with corresponding explanatory legends. The allotment of fire tasks is confirmed by the army commander. The allotment of fire tasks for a massed nuclear strike can also be included in the plan for the combat employment of the army's missile troops and artillery in the offensive operation and is likewise confirmed by the army commander.

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2. Planning the Combat Against the Enemy's Offensive

Nuclear Weapons During an Army Offensive Operation

Planning the combat against the enemy's offensive nuclear weapons is done for the whole depth of an offensive operation by the commanding officer of the army's missile troops and artillery and his headquarters. The basis for organizing and planning the combat against the enemy's offensive nuclear weapons during an army offensive operation is the decision of the army commander and the instructions from the commanding officer of the front's missile troops and artillery.

The army commander makes the decision on the basic problems of combating the enemy's offensive nuclear weapons during the operation, and especially on problems regarding the employment of nuclear weapons for their destruction. For this, he determines the targets against which nuclear weapons should be used (in the light of the availability of nuclear ammunition and the conditions under which the operation is being conducted) and the approximate quantity of nuclear ammunition which can be expended for the purpose of combating the enemy's offensive nuclear weapons; he establishes the grouping and the procedure to redeploy missile units and subunits during the operation, organizes reconnaissance of offensive nuclear weapons, and coordination between army missile units and subunits and aircraft as regards tasks, targets, boundaries, and time, and makes arrangements for the combat security and supply and maintenance of missile units and subunits. In addition, the army commander makes arrangements and assigns forces and weapons to protect and defend these units and subunits during the operation.

The commanding officer of the army's missile troops and artillery with his headquarters prepares recommendations on the problems mentioned above and participates

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in working out the decision of the army commander regarding the employment of nuclear weapons during the operation, including the part of this decision concerning the plans for the combat against the enemy's offensive nuclear weapons.

In planning the preparation of army operational-tactical and tactical missile units and subunits, as well as of gun artillery for the combat against the enemy's offensive nuclear weapons during the operation, the commanding officer of the army's missile troops and artillery, with his headquarters, must establish:

- what tasks the army's forces and weapons must carry out, taking into account the tasks in the army's offensive zone which are to be carried out by front weapons and by aircraft;
- the measures to organize close coordination between the army's missile troops and artillery and the aircraft which are carrying out the tasks of destroying and neutralizing the enemy's offensive nuclear weapons in the army's offensive zone;
- what reconnaissance means the army will have at its disposal during the operation, and what organizational measures are needed to ensure the most efficient employment of these means;
- at what stages of the offensive operation and where the intensive combat against the enemy's offensive nuclear weapons is likely to occur;
- what siting areas and routes should be earmarked for the redeployment of army operational-tactical and tactical missile and gun artillery units and subunits;
- the procedure for redeploying army operational-tactical and tactical missile and gun artillery units and subunits during the operation, taking into account

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the necessity for part of the weapons to be continuously available in a state of readiness to combat the enemy's offensive nuclear weapons;

— measures of topographical, geodetic, and meteorological support of fire (launching of missiles) during the offensive operation;

— the necessity for missile units and subunits to be strengthened by subunits of combat engineers to prepare routes and to speed up the construction of the essential minimum of fieldworks in the new fire siting areas;

— the need for reinforcements in the form of motorized rifle subunits for missile units and subunits in order to ensure the protection and defense of the latter while they are on the march and while they are occupying new siting areas;

— measures to ensure uninterrupted supplies of missiles and nose cones and ammunition for gun artillery, as well as measures to ensure uninterrupted preparation of missiles for launching.

Planning for the combat against the enemy's offensive nuclear weapons during an offensive operation starts with the determination of the possible scope of the tasks at the various stages of the operation.

In determining the scope of the tasks, consideration is given to the results of the combat against the offensive nuclear weapons during the period of preparation of the offensive operation, including the possible losses which the enemy is expected to have sustained as a result of the destruction of his offensive nuclear weapons during the massed nuclear strike against his defense. In determining the possible scope of the tasks, consideration is also given to the enemy's capabilities of carrying

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out a movement with offensive nuclear weapons from other sectors of the front into the army offensive zone or onto its flanks.

The approximate scope of the tasks of destroying (neutralizing) the enemy's offensive nuclear weapons is determined according to the army's tasks (immediate and subsequent) and the separate stages of carrying out these tasks. Thus, for instance, in some cases it is desirable to determine the possible [?] scope of the tasks to destroy and neutralize the enemy's offensive nuclear weapons during the offensive operation in conformity with the following stages of the operation:

- breakthrough of the enemy's main defense zone and repelling counterattacks of tactical reserves;
- commitment into battle of second echelons of divisions, and commitment of the army's second echelon;
- breakthrough of the enemy's corps reserves (korpusnyy rezerv) from the march;
- breakthrough of army defense zones from the march;
- capture of defense zones of an army group;
- repelling of counterattacks by the enemy's operational reserves;
- commitment into battle of the front's second echelon;
- consolidation of captured lines and objectives.

In determining the reconnaissance means which the army will have at its disposal during the offensive operation and the tasks for these means, particular

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attention is paid to the possibility of organizing continuous reconnaissance of the enemy's nuclear weapons at the most important stages of the operation, as well as to devising measures to ensure the passing of information regarding the detected enemy offensive nuclear weapons with the maximum speed.

Together with this, the commanding officer of the army's missile troops and artillery must envisage the possibility of partial decentralization of control of reconnaissance means during the operation. Partial decentralization of control of reconnaissance means, as well as of units and subunits brought in to combat the enemy's offensive nuclear weapons, is practicable in those cases when the army's offensive zone becomes considerably wider during the operation, when divisions begin to operate in separate axes cut off from each other, and also in those cases when they are operating on the army's exposed flanks. In all the above-mentioned cases, the role of divisional forces and weapons in combating the enemy's tactical offensive nuclear weapons increases considerably. In accordance with this, divisions can be reinforced with gun artillery as well as with certain reconnaissance means and, in particular, with artillery-spotter aircraft.

As a rule, the redeployment of operational-tactical missile units and subunits during the operation is done by leapfrogging (perekat) by battalions, so that it should be possible to carry out fire tasks of opportunity at any time. The size of the bounds made by operational-tactical missile units and subunits, which have a definite range of fire, depends in the main on the speed of the army's advance. When the speed of the advance is 80 to 100 km in twenty-four hours, the size of the bounds can reach 100 to 120 km. As a rule, operational-tactical missile units and subunits move at night or during the day under conditions of limited visibility so that they will not be detected by enemy aircraft.

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The selection and allocation of new siting areas is done on the basis of an analysis of the possibilities of destroying various targets, primarily the enemy's offensive nuclear weapons, from the siting areas that are occupied, and from the new ones; the terrain is also studied (from a map) with a view to determining the conditions for the concealed redeployment of units and subunits in battle formation and determining the roads and routes which will ensure rapid occupation and evacuation of the siting areas.

The selection and allocation of routes for redeploying operational-tactical missile units and subunits to new siting areas is done on the basis of a study of the network of roads, the available reconnaissance information regarding the conditions of the roads, bridges and crossings, of the detours that are available, and of the results of nuclear strikes made by our enemy weapons against areas through which the intended routes pass. Special attention is paid to determining the section of the routes which pass through zones of radioactive contamination of the ground resulting from the employment of ground nuclear bursts.

The study of routes and siting areas on the spot is carried out by reconnaissance groups (rekoghostsirovochnaya gruppa) sent out on instructions from the commanding officers of operational-tactical missile large units and units.

As a rule, redevelopment of tactical missile and gun artillery units and subunits, which are directly subordinate to the army, is carried out battalion by battalion. The size of the bounds in changing location is determined by the range of fire of tactical missiles and of guns and also by the rate of advance of the infantry and tanks. When the maximum range of fire of tactical missiles is of the order of 30 km [?] and the maximum range of fire

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of gun artillery is about 27 km, and when the infantry and tanks are advancing at a rate of 4 to 5 kph, planning the redeployment of tactical missile and gun artillery units and subunits becomes a very complicated business.

It can be reckoned that to evacuate and occupy [?] firing positions, a battalion needs about 30 minutes, and that the rate of movement along cross-country routes will not be greater than 15 kph. Under these conditions, to carry out a tactical [?] bound of 20 to 30 km (i.e., moves of from $\frac{3}{4}$ [?] to the maximum range of fire of tactical missiles and of guns) about 2 to 3 hours are needed. In 2 to 3 hours infantry and tanks can get ahead by 8 to 15 km [?].

In the initial position, the siting areas of tactical missile units and subunits are 8 to 10 km from the forward edge and the siting areas of gun artillery 5 to 6 km from it. From these positions, they can support the offensive to a line situated 18 to 20 km from the initial position of the infantry and tanks. As for their capabilities of combating the enemy's offensive nuclear weapons, these will be considerably less. If we consider that the enemy's offensive nuclear weapons will be disposed 8 to 10 km from the forward line of his own troops, then it is clear that combat against them from the siting areas that are occupied is possible only until the moment when our infantry and tanks reach a line situated 10 to 12 km from the initial position. Consequently, tactical missiles and artillery, located in the main siting areas can combat the enemy's tactical offensive nuclear weapons for only 2 to 3 hours after the beginning of the offensive. From this the conclusion is reached that the redeployment of the part of the forces and weapons earmarked to combat the enemy's offensive nuclear weapons must be started as soon as our troops begin the offensive. It is advisable to fix the new siting area 5 to 10 km from

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the forward line or the initial position of our troops at the time they begin the offensive.

What proportion of the forces and weapons should be redeployed? To answer this question, it is essential to know the specific conditions bearing on the planning of redeployment, and primarily the anticipated rate of advance of our troops and the rate at which the redeployed subunits can move in practice along the cross-country routes (dirt roads).

Let us examine how the redeployment of tactical missile units and subunits could be planned by taking an example.

To simplify calculations, we shall assume the following conditions: the army has one tactical missile regiment consisting of three battalions located in positions 10 km from our forward line. The rate of advance of our troops is equal to 4 kph and the speed at which a tactical missile battalion moves along cross-country routes is 15 kph.

From sites in the initial position all battalions can combat the enemy's offensive nuclear weapons until our troops have move forward 10 to 12 km, i.e., for 2.5 to 3 hours. Let us assume that the first battalion will start moving to the new siting area at the beginning of our offensive. To leave the area it occupies, it will require 30 minutes, and to cover the distance from its position to the old forward line of our troops along cross-country routes (dirt roads) 13 to 14 km in length (reckoning a 25 percent increase) it will require about one hour. In 1.5 hours our troops will get 6 km ahead. Therefore, it is advisable to fix the new siting area not more than 4 to 5 km beyond the old forward line. To move forward 4 to 5 km, the battalion must cover a road distance of 6 to 7 km, for which it will need another 20 to 30 minutes. To deploy the battalion in the new siting area, 30 minutes will be required.

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Thus, to redeploy the battalion under the conditions given in the above example, up to 2.5 hours will be needed. The battalion will start to deploy 3 to 4 km in the rear of the tanks and infantry advancing in the first echelon and will complete the deployment when this distance increases to 5 to 6 km.

From the new firing positions the battalion can engage the enemy's offensive nuclear weapons for a period of 3 to 3.5 hours.

By the time the battalion is ready to open fire from the new firing positions, the tanks and infantry will have advanced 10 km and the capability of the two battalions which remain in the occupied siting areas to combat the enemy's offensive nuclear weapons will begin to disappear. Consequently, it is inadvisable to leave these battalions in the positions they occupy.

Let us suppose that the second and third battalions start to redeploy as soon as the first battalion is ready to open fire. Having assembled themselves (svernut boevoy poryadok) in 30 minutes, they start the move to the new siting area. On what line should this area be fixed?

The distance from the old siting areas to the line of the siting area occupied by the first battalion (20 km) will be covered by the second and third battalions in 1 hour 20 minutes. At this time, the tanks and infantry will be 12 to 14 km from this line.

To cover this distance, the battalions will have to follow a route of 17 to 18 km, for which they will need about 1 hour 15 minutes. Having covered this distance in the indicated time, they will find themselves 5 to 6 km from the forward infantry and tank units and subunits. To reduce this distance to 3 to 4 km, (as in the first case), they will need another 5 to 10 minutes. Taking into account also the time required

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to deploy the battalions, we arrive at the time required for the second bound of the redeployment. This time will be 3 hours 40 minutes or 3 hours 45 minutes, i.e., a little longer than the time during which the first battalion can continue in action.

Consequently, the redeployment of a regiment in two echelons does not ensure the maintenance of uninterrupted readiness of tactical missiles to destroy the enemy's offensive nuclear weapons. The way out of this situation is to redeploy a regiment in three echelons, two of which must be on the move while one remains on the firing positions.

It is necessary to note that this conclusion is reached in a case where the rate of advance does not exceed 4 kph, while the speed with which the redeployed subunits move is fairly high (15 kph). If the rate of advance is higher and if the speed with which the redeployed tactical missile subunits move is lower, this method of redeployment (i.e., in three echelons) is undoubtedly the only possible one.

Similar examples can be given in regard to gun artillery.

Thus, the redeployment of tactical missile and gun artillery units and subunits, employed in combating the enemy's offensive nuclear weapons, should be planned in three echelons.

The most advisable bounds for the redeployment of missile subunits with a range of 30 km and of guns with a range of 27 km are bounds of 18 to 20 km (i.e., bounds equal to two thirds of the maximum range of fire).

The redeployment of the first echelon of tactical missiles and gun artillery should be started when our troops begin the offensive. It is advisable to start the redeployment of the second echelon when the first echelon reaches the new siting area, and of the third echelon when the second echelon reaches its new siting area. Thus, in other words, the redeployment of the

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echelon whose turn it is to move should be started without waiting for the preceding echelon to deploy in the new siting area.

However, in adhering to these rules it is necessary in practice also to take into account that at some extremely critical stages of the operation it is essential to have not one-third but two-thirds of the available forces and weapons on firing positions.

Therefore, the procedure for redeploying tactical missiles and gun artillery during the operation should be worked out with the latter requirement taken into account. This requirement is met by changing the time for starting the redeployment one way or the other, as necessary.

As a rule, the headquarters of the army's missile troops and artillery does not plan the redeployment of tactical missile battalions of divisions of the first echelon. However, it can work out a series of instructions regarding the planning of the redeployment of these battalions, especially in the cases where they will be carrying out a considerable part of the tasks of combating the enemy's nuclear weapons (for instance, when the army has no tactical missiles or is short of them).

In preparing such instructions, the headquarters of the army's missile troops and artillery should be guided by the fact that it is advisable to redeploy tactical missile battalions as a whole, without splitting them up into batteries or separate launchers. To cover the resulting gaps in time during which it will be impossible to launch a tactical missile, provision must be made to keep the gun artillery battalions, and in certain cases also the operational-tactical missile batteries, on the alert, in a state of readiness to destroy the enemy's tactical offensive nuclear weapons. In addition, it is advisable to make provision for the redeployment in turn of the tactical missile battalions of the two flanking divisions.

-32-

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The planning of the combat operations of the army's missile troops and artillery during the operational-tactical and tactical missile and gun artillery units and subunits subordinate to the army is included in the plan for the combat employment of the army's missile troops and artillery during the offensive operation, and also on the fire control map of the army's missile troops and artillery.

-33-

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3. Special Features in Planning the Combat Against
the Enemy's Offensive Nuclear Weapons During
an Army Defensive Operation

In defense, the most important task of the army's missile troops and artillery is to combat the enemy's offensive nuclear weapons. A shortage of missile units and subunits and of nuclear ammunition, as well as of gun artillery and ammunition with conventional fillings, which is a typical feature of defense, calls for exceptional economy in the employment of forces and weapons and thorough planning of this combat.

In defense, it is the army commander and his headquarters who plan the combat operations of the army and of its fire weapons.

The army commander makes decisions on the basic problems regarding the use of nuclear weapons: he determines possible targets (objectives) for nuclear strikes, the expenditure of nuclear ammunition at the various stages of the army's defensive operation and allocates it among the large units of the army; he lays down the general procedure for combating the enemy's offensive nuclear weapons, plans reconnaissance of these weapons by means of all forces and means at the disposal of the army, and also organizes logistic support for the combat operations of the army's large units and units.

The commanding officer of the army's missile troops and artillery, together with his headquarters, prepares recommendations for the army commander and participates in the working out of his decision. After the decision has been made by the army commander, he immediately plans the preparation of the army's missile troops and artillery for combat operations and controls them and their

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fire during the defensive operation.

In defense, when planning to combat the enemy's offensive nuclear weapons, the commanding officer of the army's missile troops and artillery, together with his headquarters, determines first of all the number of operational-tactical and tactical missile units and gun artillery units that can be brought in for this battle, as well as the capabilities of these forces and means in the light of the availability of nuclear ammunition. The quantity of forces and weapons which can be brought in to combat the enemy's offensive nuclear weapons is determined for each stage of the defensive operation.

The planning for the combat against the enemy's offensive nuclear weapons in the headquarters of the army's missile troops and artillery includes:

— allocating tasks between operational-tactical missiles, tactical missiles, and gun artillery, taking into account the tasks that are to be carried out by front operational-tactical missiles and aircraft;

— allocating reconnaissance means and planning of reconnaissance of the enemy's offensive nuclear weapons;

— allocating units and subunits of tactical missiles and gun artillery of the army and of the reserve of the supreme command (RVGK) between divisions, missile and artillery groups, or a single missile-artillery group, if there is a sufficient number of these units and subunits;

— fixing the zones and areas in which nuclear weapons are to be combated by a particular unit (group) or by the missile battalion and artillery of a particular division of the army's first echelon;

— selecting and assigning main, temporary, and dummy siting areas for operational-tactical and tactical

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missile and gun artillery units and subunits, and measures for engineer work (inzhenernoye oborudovaniye) and for the camouflaging and protection of these areas;

— fixing the procedure to destroy and neutralize the enemy's offensive nuclear weapons at the various stages of the defensive operation;

— working out one or several ways of carrying out a counterpreparation and determining the forces and weapons to be brought in for the counterpreparation, including the forces and weapons which will be employed to destroy and neutralize the enemy's offensive nuclear weapons;

— determining and fixing the quantity of nuclear ammunition and ammunition with conventional filling to be expended in combating the enemy's offensive nuclear weapons at each stage of the defensive operation and for the counterpreparation, in the light of the total quantity of such ammunition made available for the defensive operation.

The scope of the work to carry out the above-mentioned measures depends on the specific conditions under which the combat operations of missile troops and artillery in the operation are planned.

In resolving the various problems, the extent to which it will be necessary to go into detail will also vary.

Let us consider the problem of the number of units and subunits which can be brought in to combat the enemy's offensive nuclear weapons at the various stages of the defensive operation.

First of all, it is necessary to note that the number of units and subunits which should be brought in to combat the enemy's offensive nuclear weapons cannot be the same at all stages of the operation

-36-

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because the scope of the tasks to be carried out by missile troops and artillery cannot be the same.

A defensive operation may be prepared and carried out both under conditions when our troops are not in contact with the enemy and go over to the defensive in good time, and also while our troops are fighting the enemy, i.e., under conditions of direct contact with his troops. In the first case, the troops will have some time for planning the defense, including preparation and planning to combat the enemy's offensive nuclear weapons, while the defense system will start with the security zone (polosa obespecheniya). In the second case, there will be very little time to plan the defense and to prepare and plan the combat against the enemy's offensive nuclear weapons. Moreover, the combat against the enemy weapons will have to continue in the way it has developed during the fighting.

In this case, the commanding officer of the army's missile troops and artillery, together with his headquarters, must improve the system and procedure of this combat and work out measures to organize it, taking into account the impending stabilization of the situation between the two sides involved in the fighting. Stabilization of this sort can happen either as a result of stopping our offensive or as a result of the enemy stopping his offensive, or as a result of the unsuccessful outcome of a meeting engagement (battle).

When there is a security zone, army forces and weapons will start to combat the enemy's offensive nuclear weapons when the forward detachments begin fighting. At this stage of the defensive battle (operation), the enemy will deliver nuclear strikes against individual strong points in the security zone, as well as against strong points, centers of resistance (uzel oborony), and reserves in our tactical defense zone, with a view to overrunning our security zone as quickly as possible and seizing our

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main defense zone from the march. In this connection, at this stage of the defensive operation, the need will arise to destroy and neutralize the enemy's operational-tactical offensive nuclear weapons, which will be delivering strikes against our main defense zone, and the comparatively small number of tactical weapons which will be delivering strikes against strong points in the security zone. Consequently, to combat the enemy's nuclear weapons at this stage of the operation, operational-tactical missile batteries on the alert and a comparatively small part of the tactical missiles and gun artillery can be detailed; they should be moved up into temporary fire positions located in the security zone.

When the enemy is preparing to attack under conditions of direct contact with our troops, the task of combating his nuclear weapons devolves on the operational-tactical and tactical missile batteries (battalions) on the alert and on the battalions of gun artillery on the alert which, as a rule, occupy temporary launch sites and firing positions.

To carry out the counterpreparation, the greatest quantity of forces and weapons of the army's missile troops and artillery is brought in. Units and subunits whose task is to engage the enemy's offensive nuclear weapons make strikes during the counterpreparation, mainly against static targets: depots and supply bases, assembly bases for nuclear ammunition, technical positions, control positions, and other similar objectives, as well as against the offensive nuclear weapons located on firing positions and launch sites, which have been detected immediately before the counterpreparation or are on the alert, a fact that must be established by the last minute reconnaissance of them before the beginning of counterpreparation.

An equally critical time in the combat against the enemy's offensive nuclear weapons is the destruction and neutralization of these weapons on firing positions and launch sites when they are being prepared for a massed nuclear strike against our defense. Ascertaining a mass movement forward of these weapons to firing

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positions and launch sites, as well as fixing the coordinates of these positions and reporting them with the maximum rapidity to the army command is the most important task of all reconnaissance means.

To combat the enemy's offensive nuclear weapons while they are being prepared for a massed nuclear strike, all batteries and battalions on the alert are employed, as well as all other weapons which have the capability of rapidly preparing and delivering a strike against the enemy's offensive nuclear weapons that have been detected.

While the enemy is attacking the forward edge of the main defense zone, the main efforts of the army's missile troops and artillery will be concentrated on repelling the attack of tanks and infantry, as well as on destroying and neutralizing the enemy's second echelons and the nearest tactical reserves. At this stage of the operation, it will be for operational-tactical and tactical missile batteries on the alert and for battalions of ground artillery on the alert to combat the enemy's offensive nuclear weapons. Special attention must be paid to planning this combat while our troops are carrying out a counterattack and counterstrike.

During a defensive operation, batteries and battalions on the alert also play a basic part in combating the enemy's offensive nuclear weapons.

In defense, when plans are being drawn up to combat the enemy's nuclear weapons, definite targets and the amount of ammunition to be used against them are fixed only when the counterpreparation is being planned. In all other cases, the tasks are given in a general way, and the expenditure of ammunition can be determined and fixed as a ceiling which may be exceeded only in the most exceptional circumstances.

-39-

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Plans for the combat against the enemy's offensive nuclear weapons are an integral part of the planning for the combat operations of missile troops and artillery in defense and so are included in the plans and in the combat documents drawn up by the headquarters of army's missile troops and artillery. And, in particular, these combat plans are included in the plan of operations of missile troops and artillery in the army's defensive operation, which is drawn up [?] on a map with various explanatory [?] legends, and also on the fire control map for the army's missile troops and artillery in defense.

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4. Control of Fire of Units and Subunits on the Alert

When Combating the Enemy's Offensive Nuclear Weapons

The commanding officer of the army's missile troops and artillery controls the combat operations and fire of operational-tactical and tactical missile and gun artillery units and subunits subordinate to the army and, in particular, the fire of units and subunits on the alert from the command post (KP) or from the forward command post (PKP).

To ensure efficient operational fire control, one or two (for working in shifts) groups for fire control are set up in the command post (or the forward command post). If one group is set up for fire control, then the commanding officer of the army's missile troops and artillery is in charge of it. If two groups are set up for working in shifts, then the commanding officer of the army's missile troops and artillery is in charge of one group and his chief of staff of the other.

In practice, an alternative situation can arise when a fire control group working at the forward command post is commanded by the commanding officer of the army's missile troops and artillery, while a fire control group is functioning simultaneously at the command post commanded by the chief of staff of the army's missile troops and artillery.

Several officers are detailed to form the fire control groups: the head of the operations section or the senior officer of this section, the head of the reconnaissance section or the senior officer of this section, 1 - 2 officers from these sections, and one officer from the armaments section.

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To control the fire of units and subunits on the alert, use is made of the fire control map of the army's missile troops and artillery, of graphs, tables, and other documents which give the state of the units and subunits on the alert, the tables of signals and call signs, as well as tables for coding and decoding orders, if automatic communications security equipment (ZAS equipment) is not available.

Fire control must be ensured by multichannel communications which provide for the passing of firing tasks directly to units and subunits on the alert.

To ensure the most operational procedure for the receipt of reconnaissance information regarding the enemy's offensive nuclear weapons, the headquarters of the army's missile troops and artillery must have direct communications with the commanding officers of reconnaissance units (subunits) and facilities to establish direct communications with the means which are carrying out reconnaissance. In the great majority of cases, these means will be artillery-spotter aircraft.

Now let us examine the procedure and scope of the work of a fire control group in calling for fire from units (subunits) on the alert.

Having organized reconnaissance of the enemy's offensive nuclear weapons, the headquarters of the army's missile troops and artillery continuously checks the operations of reconnaissance means, analyzes and circulates the reconnaissance information it receives about offensive nuclear weapons, and sets further tasks for reconnaissance and last-minute reconnaissance by these means. In organizing reconnaissance of the enemy's offensive nuclear weapons, attention must be given mainly to the immediate circulation [?] of a report on detected offensive nuclear weapons. For this, it is essential

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to fix certain signals, on receipt of which the fire control group must get ready to receive details regarding the detected target.

A report on detected offensive nuclear weapons must be as short as possible and should contain only the details that are required to prepare fire against this target. To shorten the report as much as possible, it should not contain information on the state or features of the activity of targets, which is usually given in reports on targets. Thus, for instance, it can be agreed that the report should not include information on a certain offensive nuclear weapon at a firing position and also on the dimensions of the target, if they do not differ from the usual, and on whether there are fieldworks at the position or not, if it is not atypical, etc.

A short report must include:

- the call sign of the subscriber and its own call sign;
- the signal denoting that enemy offensive nuclear weapons have been detected;
- designation of target (which can be indicated by a codeword);
- coded map coordinates;
- password (parol)

On the basis of the coordinates received, the target is marked on the fire control map; is given [?] a number, and the time of its detection is noted.

The commanding officer of the army's missile troops and artillery determines first of all whether it is advisable to fire at the target, taking into account its nature (designation) which affects the length of time the target remains on the same position. After

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this, he determines the fire task against the target (destruction, neutralization, etc.), and on the basis of a report from one of the officers of the fire control group regarding the capabilities of the various weapons on the alert for hitting this target (taking into account the range of fire, the yield of the charge, and the degree of readiness to fire a round, or fire for effect), or on the basis of a personal analysis and comparison of the appropriate details on the fire control map and the legends to it, he decides which subunit on the alert should be used to fire against the target and determines the type of nuclear burst to be used.

In accordance with the decision taken, the officers of the fire control group determine the most advantageous height (if an air burst is to be used) and the coordinates for the ground zero of the burst. In resolving these problems, the safe distance of one's own troops from the ground zero of the nuclear burst is determined and taken into account.

On the basis of the information on the nature of the target, the type of missile and the yield of the nuclear charge held by the subunit on the alert, and the intended type, height, and position of the ground zero of the nuclear burst, the expected results of the strike against the target are determined and the radioactive contamination of the terrain is estimated.

The setting of a task to a unit or subunit on the alert begins with the dispatch of a warning signal, which stops all other conversations on the lines [?] or means of communications, while the unit or subunit on the alert prepares to receive and carry out the future task [?]. The warning signal is dispatched by one of the officers of the fire control [group?] as soon as the commanding officer of the army's missile troops and artillery has decided which unit or subunit on the alert is to be employed to destroy (neutralize) the detected target.

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The order calling for fire by a unit or subunit on the alert includes:

- the call sign of the unit or the subunit on the alert;
- the height of the nuclear burst (for an airburst);
- coordinates for the point of aim;
- target number;
- procedure or time for opening fire;
- password.

A subunit on the alert can open fire as soon as it is ready, and in this case the order "Fire!" should be given. A subunit on the alert can prepare to launch a missile round and launch (fire) on orders from the commanding officer of the army's missile troops and artillery, and in this case the order "Report when ready!" should be given. A subunit on the alert can prepare to launch (fire) a missile by a definite time, and in this case the order "Be ready at a certain hour, in so many minutes!" should be given. In the first case, the subunit on the alert launches (or fires) and merely reports that this has been done; in the second and third cases, it reports that it is ready to launch (fire) and awaits further orders.

When automatic communications security equipment (ZAS) is not available, the order sent to units (subunits) on the alert to deliver [?] a nuclear strike is encoded [?] with the aid of an agreed table and is transmitted in the form of a few groups of figures [?].
[Three words in brackets missing

After giving the order to open fire, the commanding officer of the army's missile troops and artillery issues instructions when necessary on the planning and execution of measures to check the results of the nuclear strike.

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In some cases, the nuclear strike against the target can be preceded by its neutralization by gun artillery fire. Such cases are most likely to occur when combating enemy offensive nuclear weapons which possess high mobility and are at firing positions and launch sites for a very short time. As was established in Chapter VI, the probability of destruction of those weapons is very small. However, the destruction reliability of these targets can be increased by planning immediate neutralization of such targets by fire from gun artillery as soon as they are detected, with the object, in the first place, of preventing their firing projectiles with nuclear charges and, secondly, of preventing these weapons' leaving the firing positions and launch sites which they occupy.

As in the previous cases on receiving a report regarding such a target, the commanding officer of the army's missile troops and artillery determines first of all whether it is advisable to open fire against the target. Having decided that the target should be destroyed, and taking into account that a definite period of time will be needed to plan and prepare a strike against the target, during which time the target may deliver a strike against our troops and leave its position, he must give an order to the gun artillery battalion on the alert to open fire against the detected target.

The order is given in the usual way, without encoding the order itself. Before the order is given a warning signal can be sent.

The order to the gun artillery battalion on the alert includes:

- the battalion call sign;
- designation of target and its dimensions (if necessary);
- target coordinates;

-46-

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- target number;
- fire task (neutralization or destruction).

Having received the order, the battalion on the alert prepares and opens fire against the target in accordance with the task set. The firing procedure and the expenditure of ammunition are in accordance with arrangements which must be made in advance when the battalion is detailed to be on the alert.

After the order has been sent to the battalion on the alert, the fire control group works on the preparation of a nuclear strike against the target, if a decision has been taken to destroy it with nuclear weapons, or makes preparations to ensure annihilation fire against the target with adequate artillery weapons, if it has been decided to destroy the target not by a nuclear strike but by gun artillery fire.

The work of the fire control group in planning and carrying out the destruction of the target is completed, as in the first case, by organizing the checking of the results of annihilation fire against the detected enemy offensive nuclear weapon objective.

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Chapter Conclusions

1. Planning the combat against offensive nuclear weapons on an army scale represents a complicated group of measures, including:

— planning of reconnaissance and last-minute reconnaissance of nuclear weapons;

— planning of timely reporting of the results of reconnaissance to the headquarters of the army's missile troops and artillery;

— organizing the work of the headquarters of the army's missile troops and artillery itself, with a view to ensuring the working out as rapidly as possible of the decision on firing against the enemy's nuclear weapons;

— planning of efficient control of and reliable multichannel communications with troops carrying out the task (fire subunits);

— planning a roster of subunits (batteries, battalions) on the alert;

— planning of topographic-geodetic and meteorological support for fire;

— organizing an uninterrupted supply of ammunition;

— organizing the checking of firing results.

2. The general planning for the combat against the enemy's offensive nuclear weapons with the forces and weapons of the army is done by army headquarters. Definite and detailed planning of the combat operations of missile units and gun artillery for combat against the enemy's offensive nuclear weapons is carried out by the headquarters of the army's missile troops and artillery.

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3. Planning for the combat against offensive nuclear weapons in an army offensive operation includes:

- planning to combat nuclear weapons during the period of preparation for an offensive operation;

- organizing and planning to destroy the enemy's offensive nuclear weapons within the framework of a massed nuclear strike;

- planning to combat nuclear weapons during the offensive operation.

4. Planning the combat against offensive nuclear weapons during an offensive operation is carried out in accordance with the army's tasks and the separate stages of performing these tasks. One of the most important questions which has to be decided here is planning the redeployment of operational-tactical and tactical missile and gun artillery units and subunits.

5. In organizing and planning the redeployment of the army's missile troops and artillery during an offensive, it is first of all essential to estimate the capabilities of these weapons in combating the enemy's offensive nuclear weapons.

With the existing types of operational-tactical missiles, it is advisable to carry out the redeployment of units with these missiles during an operation in two echelons in bounds of the order of 100 to 120 km.

With the existing types of tactical missiles and systems of gun artillery, it is advisable to organize the redeployment of units and subunits with these missiles and guns in three echelons with bounds of the order of 20 km.

6. The organization and plans for the combat against the enemy's offensive nuclear weapons can be included in the usual documents, compiled by the headquarters of the army's missile troops and artillery. However, in view of

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the importance of this combat, the plans can be set out in some cases in the form of a separate document, for instance in the form of a plan to combat the enemy's offensive nuclear weapons in an army offensive operation.

7. In defense, plans to combat the enemy's offensive nuclear weapons are prepared in conformity with the stages of the defensive operation and are set out in the plan for the employment of missile troops and artillery in the army defensive operation.

8. To ensure the fire control of the army's missile troops and artillery and, primarily, to ensure fire control when combating the enemy's offensive nuclear weapons, fire control groups must be set up at the forward command post and at the command post of the army's missile troops and artillery.

To ensure the successful activities of these groups, the duties to be carried out by each officer of the group must be laid down clearly, and the general procedure in the work of the whole group when it is planning the destruction or neutralization of the enemy's offensive nuclear weapons must be established in advance. The procedure set out in Section 4 of this chapter can be taken as an example of such a procedure.